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PROPOSED MERGER
YOUR VOTE IS VERY IMPORTANT

To the Stockholders of Homology Medicines, Inc. and Q32 Bio Inc.,

Homology Medicines, Inc., a Delaware corporation, or Homology, and Q32 Bio Inc., a Delaware corporation, or Q32, entered into an Agreement and Plan of Merger, or the Merger Agreement, on November 16, 2023, pursuant to which a direct, wholly owned subsidiary of Homology, Kenobi Merger Sub, Inc., or Merger Sub, will merge with and into Q32, with Q32 surviving as a direct, wholly owned subsidiary of Homology, and the surviving corporation of the merger, which transaction is referred to herein as the Merger. Homology following the Merger is also referred to herein as the combined company.

At the time the certificate of merger is filed with and accepted by the Secretary of State of the State of Delaware, or the Effective Time, as described in more detail in the section titled "*The Merger—Effective Time of the Merger*" beginning on page 188 of the accompanying proxy statement/prospectus, each share of Q32 common stock (after giving effect to the conversion of each share of Q32's preferred stock into Q32 common stock and the conversion of Q32's convertible notes into Q32 common stock and including all such shares that are converted into Q32 common stock) will be converted into the right to receive a number of shares of Homology common stock equal to the total number of shares of Homology common stock to be issued in the Merger multiplied by the applicable Q32 stockholder's percentage interest in Q32 as set forth in the allocation certificate to be provided by Q32, or the Allocation Certificate, and as described in more detail in the section titled "*The Merger Agreement—Allocation Certificate*" beginning on page 194 of the accompanying proxy statement/prospectus. The Q32 common stock that will be converted in connection with the Merger includes Q32 common stock to be issued pursuant to the subscription agreement by and among Q32 and certain parties to purchase an aggregate of $42.0 million of shares of Q32's common stock, which transaction is referred to as the Pre-Closing Financing. If any Q32 common stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Q32 common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

In connection with the Merger, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will be assumed by Homology and converted, at the Effective Time, into an option to acquire the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price equal to the per share exercise price of such option immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent, and each unexercised warrant to purchase shares of Q32 common stock outstanding immediately prior to the Effective Time will be assumed by Homology and converted into a warrant to purchase shares of Homology's common stock, with adjustments to the number of shares and the exercise price to reflect the exchange ratio formula in the Merger Agreement.

Each share of Homology common stock that is issued and outstanding at the Effective Time will remain issued and outstanding and such shares will be unaffected by the Merger but will be subject to a proposed reverse stock split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30 as determined by the Homology board of directors in its discretion, or the Reverse Stock Split, as described in the section titled "*Matters Being Submitted to a Vote of Homology Stockholders—Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split*" beginning on page 239 of the accompanying proxy statement/prospectus. Each

outstanding option to purchase shares of Homology common stock that has an exercise price per share that is less than the closing trading price of a share of Homology common stock on the last full trading date on which the Homology common stock is traded prior to the date on which the Effective Time occurs, which is referred to as a Homology ITM Option, will vest in full immediately prior to the Effective Time and remain outstanding, subject to proportionate adjustment in accordance with the terms of Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the Reverse Stock Split and the issuance of the contingent value rights, or CVRs. Each outstanding option to purchase shares of Homology common stock that is not a Homology ITM Option will be cancelled for no consideration immediately prior to the Effective Time. Each restricted stock unit award covering shares of Homology common stock, which is referred to as a Homology Restricted Stock Unit, that is outstanding will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit.

Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company on a fully-diluted basis and former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million.

The percentage ownership of the combined company was derived using a stipulated value for Q32 of approximately $237.0 million, inclusive of the Pre-Closing Financing, and a stipulated value for Homology of approximately $80.0 million, as of November 16, 2023, the date of the Merger Agreement. The valuation of Homology was determined based on projected net cash, as defined in the Merger Agreement, of approximately $60.0 million, subject to adjustment, plus an additional $20.0 million of equity value. The value from any future monetization of Homology operating assets, including fixed assets, intellectual property and the equity method investment, will be delivered to legacy Homology equity holders via a payment through the CVR. The fair value of consideration transferred is not indicative of the combined entities' enterprise value upon consummation of the Merger.

Shares of Homology common stock are currently listed on The Nasdaq Global Select Market, or Nasdaq, under the symbol "FIXX." Q32 intends to file an initial listing application for the combined company with the Nasdaq Stock Market LLC. After completion of the Merger, Homology will be renamed "Q32 Bio Inc." and it is expected that the common stock of the combined company will trade on Nasdaq under the symbol "QTTB." On February 13, 2024, the last trading day before the date of the accompanying proxy statement/prospectus, the closing sale price of Homology common stock was $0.7067 per share. Under the Merger Agreement, each of Homology's and Q32's obligation to complete the Merger is subject to the satisfaction or waiver by each of the parties of various conditions, including that the shares of Homology common stock to be issued in the Merger have been approved for listing (subject to official notice of issuance) on Nasdaq as of the closing of the Merger. In the event that the shares of Homology common stock to be issued in the Merger are not approved for listing on Nasdaq, it is possible that Homology and Q32 may mutually agree to waive the applicable condition and nonetheless proceed with completion of the Merger. If such condition is waived, Homology will not recirculate an updated proxy statement/prospectus, nor will it solicit a new vote of stockholders prior to proceeding with the Merger. Accordingly, you are advised that Homology stockholders will not have certainty regarding the listing of the combined company's shares at the time you are asked to vote at the special meeting described below.

Homology stockholders are cordially invited to attend the special meeting of Homology stockholders, or the Homology Special Meeting. Homology is holding the Homology Special Meeting, on March 15, 2024, at 9:00 a.m., Eastern Time, unless postponed or adjourned to a later date, in order to obtain the stockholder approvals necessary to complete the Merger. The Homology Special Meeting will be held entirely online.

Homology stockholders will be able to attend and participate in the Homology Special Meeting online by visiting www.virtualshareholdermeeting.com/FIXX2024SM where they will be able to listen to the meeting live, submit questions and vote. At the Homology Special Meeting, Homology will ask its stockholders:

1. To approve the issuance of shares of common stock of Homology to stockholders of Q32 pursuant to the terms of the Agreement and Plan of Merger, dated as of November 16, 2023, by and among Homology, Merger Sub, and Q32, a copy of which is attached as *Annex A* to the accompanying proxy statement/prospectus, pursuant to which Merger Sub will merge with and into Q32, with Q32 surviving as a wholly owned subsidiary of Homology, and the surviving corporation of the merger and the change of control resulting from the merger, or the Stock Issuance Proposal;
2. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to the accompanying proxy statement/prospectus, to increase the number of authorized shares of Homology common stock to 400,000,000, subject to the Homology board of directors' authority to abandon such amendment, or the Authorized Share Increase Proposal;
3. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to the accompanying proxy statement/prospectus, to effect a reverse stock split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30, as determined by the Homology board of directors in its discretion, subject to the Homology board of directors' authority to abandon such amendment, or the Reverse Stock Split Proposal;
4. To approve on an advisory, non-binding basis certain compensation arrangements for Homology's named executive officers in connection with the Merger, or the Merger Compensation Proposal;
5. To approve the 2024 Stock Option and Incentive Plan, a copy of which is attached as *Annex I* to the accompanying proxy statement/prospectus, or the Stock Option and Incentive Plan Proposal;
6. To approve the 2024 Employee Stock Purchase Plan, a copy of which is attached as *Annex J* to the accompanying proxy statement/prospectus, or the ESPP Proposal; and
7. To consider and vote upon an adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, or the Adjournment Proposal.

As described in the accompanying proxy statement/prospectus, certain Homology stockholders who in the aggregate owned approximately 18.3% of the outstanding shares of Homology as of February 5, 2024, and certain Q32 stockholders who in the aggregate owned approximately 73.9% of the outstanding shares of Q32 common stock and Q32 preferred stock as of December 31, 2023, are parties to stockholder support agreements with Homology and Q32, respectively, whereby such stockholders have agreed to vote in favor of the approval of the transactions contemplated therein, including, with respect to such Q32 stockholders, adoption of the Merger Agreement and approval of the Merger and, with respect to such Homology stockholders, the issuance of Homology common stock in the Merger pursuant to the Merger Agreement, subject to the terms of the support agreements. Following the effectiveness of the registration statement on Form S-4 of which the accompanying proxy statement/prospectus is a part and pursuant to the Merger Agreement, Q32 stockholders holding a sufficient number of shares of Q32 common stock to adopt the Merger Agreement and approve the Merger and related transactions will be asked to execute written consents providing for such adoption and approval.

After careful consideration, each of the Homology and Q32 boards of directors have approved the Merger Agreement and have determined that it is advisable to consummate the Merger. The Homology board of directors has approved the proposals described in the accompanying proxy statement/prospectus and unanimously recommends that its stockholders vote "**FOR**" each of the proposals described in the accompanying proxy statement/prospectus.

More information about Homology, Q32, the Merger Agreement and transactions contemplated thereby and the foregoing proposals is contained in the accompanying proxy statement/prospectus. Homology urges you to read the accompanying proxy statement/prospectus carefully and in its entirety. IN PARTICULAR, YOU SHOULD CAREFULLY CONSIDER THE MATTERS DISCUSSED UNDER "RISK FACTORS" BEGINNING ON PAGE 30 OF THE ACCOMPANYING PROXY STATEMENT/PROSPECTUS.

Homology and Q32 are excited about the opportunities the Merger brings to Homology's and Q32's stockholders and thank you for your consideration and continued support.

Sincerely,

/s/ Paul Alloway, Ph.D.	/s/ Jodie Morrison
Paul Alloway, Ph.D.	Jodie Morrison
President and Chief Operating Officer	*President and Chief Executive Officer*
Homology Medicines, Inc.	Q32 Bio Inc.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the accompanying proxy statement/prospectus. Any representation to the contrary is a criminal offense.

The accompanying proxy statement/prospectus is dated February 14, 2024 and is first being mailed to Homology stockholders on or about February 14, 2024.

HOMOLOGY MEDICINES, INC.
ONE PATRIOTS PARK
BEDFORD, MA 01730
(781) 327-2633

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS

To the stockholders of Homology Medicines, Inc., or Homology:

NOTICE IS HEREBY GIVEN that a special meeting of stockholders of Homology, or the Homology Special Meeting, will be held on March 15, 2024, at 9:00 a.m., Eastern Time, unless postponed or adjourned to a later date. The Homology Special Meeting will be held entirely online. You will be able to attend and participate in the Homology Special Meeting online by visiting www.virtualshareholdermeeting.com/FIXX2024SM where you will be able to listen to the Homology Special Meeting live, submit questions and vote.

The Homology Special Meeting will be held for the following purposes:

1. To approve the issuance of shares of common stock of Homology to stockholders of Q32 Bio Inc., or Q32, pursuant to the terms of the Agreement and Plan of Merger, dated as of November 16, 2023, by and among Homology, Kenobi Merger Sub, Inc., a direct, wholly owned subsidiary of Homology, or Merger Sub, and Q32, a copy of which is attached as *Annex A* to the accompanying proxy statement/prospectus, pursuant to which Merger Sub will merge with and into Q32, with Q32 surviving as a wholly owned subsidiary of Homology, and the surviving corporation of the merger, or the Merger, and the change of control resulting from the Merger, or the Stock Issuance Proposal;
2. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to the accompanying proxy statement/prospectus, to increase the number of authorized shares of Homology common stock to 400,000,000, subject to the Homology board of directors' authority to abandon such amendment, or the Authorized Share Increase Proposal;
3. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to the accompanying proxy statement/prospectus, to effect a reverse stock split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30, as determined by the Homology board of directors in its discretion subject to the Homology board of directors' authority to abandon such amendment, or the Reverse Stock Split Proposal;
4. To approve on an advisory, non-binding basis certain compensation arrangements for Homology's named executive officers in connection with the Merger, or the Merger Compensation Proposal;
5. To approve the 2024 Stock Option and Incentive Plan, a copy of which is attached as *Annex I* to the accompanying proxy statement/prospectus, or the Stock Option and Incentive Plan Proposal;
6. To approve the 2024 Employee Stock Purchase Plan, a copy of which is attached as *Annex J* to the accompanying proxy statement/prospectus, or the ESPP Proposal; and
7. To consider and vote upon an adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, or the Adjournment Proposal.

Record Date: Homology's board of directors has fixed February 5, 2024 as the record date for the determination of stockholders entitled to notice of, and to vote at, the Homology Special Meeting and any adjournment or postponement thereof. Only holders of record of shares of Homology common stock at the close of business, Eastern Time, on the record date are entitled to notice of, and to vote at, the Homology Special Meeting. At the close of business, Eastern Time, on the record date, Homology had 58,129,740 shares of common stock outstanding and entitled to vote.

Your vote is important. The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote thereon is required for approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal, the Reverse Stock Split Proposal, the Merger Compensation Proposal, the Stock Option and Incentive Plan Proposal, the ESPP Proposal and the Adjournment Proposal. Approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal is a condition to the completion of the Merger. Therefore, the Merger cannot be consummated without the approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

Even if you plan to attend the Homology Special Meeting, Homology requests that you sign, date and promptly return the enclosed proxy card or vote by telephone or online to ensure that your shares will be represented at the Homology Special Meeting. You may change or revoke your proxy at any time before it is voted at the Homology Special Meeting.

HOMOLOGY'S BOARD OF DIRECTORS HAS DETERMINED AND BELIEVES THAT EACH OF THE PROPOSALS OUTLINED ABOVE IS FAIR TO, IN THE BEST INTERESTS OF, AND ADVISABLE TO HOMOLOGY AND ITS STOCKHOLDERS AND HAS APPROVED EACH SUCH PROPOSAL. HOMOLOGY'S BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT HOMOLOGY STOCKHOLDERS VOTE "FOR" EACH SUCH PROPOSAL.

By Order of Homology's Board of Directors,

/s/ Paul Alloway, Ph.D.
Paul Alloway, Ph.D.
President and Chief Operating Officer
Bedford, MA
February 14, 2024

ADDITIONAL INFORMATION

This proxy statement/prospectus incorporates important business and financial information about Homology Medicines, Inc. that is not included in or delivered with this document. You may obtain this information without charge through the Securities and Exchange Commission website (*www.sec.gov*).

If you would like to request documents from Homology or Q32, please send a request in writing or by telephone to either Homology or Q32 at the following addresses:

Homology Medicines, Inc.
One Patriots Park
Bedford, MA 01730
(781) 327-2633
Attn: Corporate Secretary
Email: IR@homologymedicines.com

Q32 Bio Inc.
830 Winter Street
Waltham, MA 02451
Attn: Investor Relations
(781) 999-0232
Email: IR@q32bio.com

If you are a Homology stockholder and would like additional copies, without charge, of this proxy statement/prospectus or if you have questions about the Merger, including the procedures for voting your shares, you should contact Homology's proxy solicitor, Morrow Sodali LLC, or Morrow Sodali, at the following address and telephone number:

Morrow Sodali LLC
430 Park Avenue, 14th Floor
New York, NY 10022
Banks and Brokers Call: (203) 658-9400
Stockholders Call Toll Free: (800) 662-5200

To ensure timely delivery of these documents, any request should be made no later than 11:59 p.m., Eastern Time, on March 8, 2024, to receive them before the Homology Special Meeting.

For additional details about where you can find information about Homology, please see the section titled "*Where You Can Find More Information*" beginning on page 459 of this proxy statement/prospectus.

ABOUT THIS PROXY STATEMENT/PROSPECTUS

This document, which forms part of a registration statement on Form S-4 filed with the U.S. Securities and Exchange Commission, or the SEC, by Homology Medicines, Inc., or Homology, constitutes a prospectus of Homology under the Securities Act of 1933, as amended, or the Securities Act, with respect to the shares of common stock of Homology to be issued (or reserved for issuance) to the securityholders of Q32 Bio Inc., or Q32, pursuant to the Agreement and Plan of Merger, dated as of November 16, 2023, by and among Homology, Kenobi Merger Sub, Inc., a direct, wholly owned subsidiary of Homology, or Merger Sub, and Q32, as it may be amended from time to time, or the Merger Agreement, pursuant to which Merger Sub will merge with and into Q32, with Q32 surviving as a wholly owned subsidiary of Homology, and the surviving corporation of the merger, or the Merger. This document also constitutes a proxy statement of Homology under Section 14(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act. It also constitutes a notice of meeting with respect to the special meeting of Homology stockholders, or the Homology Special Meeting, at which Homology stockholders will be asked to consider and vote, among other matters, on the issuance of the shares of Homology common stock pursuant to the Merger Agreement and the change of control resulting from the Merger. Homology following the Merger is referred to in this proxy statement/prospectus as the combined company.

Homology has supplied all information contained in this proxy statement/prospectus relating to Homology. Q32 has supplied all information contained in this proxy statement/prospectus relating to Q32.

You should rely only on the information contained in this proxy statement/prospectus. Homology and Q32 have not authorized anyone to provide you with information that is different from that contained in this proxy statement/prospectus. This proxy statement/prospectus is dated February 14, 2024, and you should not assume that the information contained in this proxy statement/prospectus is accurate as of any date other than such date. Neither the mailing of this proxy statement/prospectus to Homology stockholders nor the issuance by Homology of shares of Homology common stock pursuant to the Merger Agreement will create any implication to the contrary.

Except where otherwise noted, the information contained in this proxy statement/prospectus does not give effect to the proposed reverse stock split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30 as determined by the Homology board of directors in its discretion, or the Reverse Stock Split, described in the section titled "*Matters Being Submitted to a Vote of Homology Stockholders—Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split*" beginning on page 239 of this proxy statement/prospectus.

Homology and Q32 have proprietary rights to trademarks, trade names and service marks appearing in this proxy statement/prospectus that are important to their respective businesses. Solely for convenience, the trademarks, trade names and service marks may appear in this proxy statement/prospectus without the ® and TM symbols, but any such references are not intended to indicate, in any way, that Homology or Q32 forgo or will not assert, to the fullest extent under applicable law, their rights or the rights of the applicable licensors to these trademarks, trade names and service marks. All trademarks, trade names and service marks appearing in this proxy statement/prospectus are the property of their respective owners.

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CAUTIONARY STATEMENT CONCERNING FORWARD-LOOKING STATEMENTS

This proxy statement/prospectus contains forward-looking statements relating to Homology, Q32, the Merger, the combined company, and the other proposed transactions.

These forward-looking statements are based on current expectations and beliefs and involve numerous risks and uncertainties that could cause actual results to differ materially from expectations. These forward-looking statements should not be relied upon as predictions of future events as Homology and Q32 cannot assure you that the events or circumstances reflected in these statements will be achieved or will occur. You can identify forward-looking statements by the use of forward-looking terminology including "believes," "expects," "may," "will," "should," "seeks," "intends," "plans," "pro forma," "estimates" or "anticipates" or the negative of these words and phrases or other variations of these words and phrases or comparable terminology. All statements other than statements of historical fact are statements that could be deemed forward-looking statements. Forward-looking statements include, but are not limited to, any statements regarding the strategies, prospects, plans, expectations or objectives of management of Homology or Q32 for future operations of the combined company, the progress, scope or timing of the development of the combined company's product candidates, the expectations surrounding the potential safety, efficacy, and regulatory and clinical progress of Q32's product candidates, including bempikibart and ADX-097, and anticipated milestones and timing therefor, the benefits that may be derived from any future products or the commercial or market opportunity with respect to any future products of the combined company, the ability of the combined company to protect its intellectual property rights, the anticipated operations, financial position, ability to raise capital to fund operations, revenues, costs or expenses of Homology, Q32 or the combined company, statements regarding future economic conditions or performance, statements of belief and any statement of assumptions underlying any of the foregoing. Forward-looking statements may also include any statements regarding the approval and closing of the Merger, including the conditions to and timing of closing of the Merger, the location and management of the combined company, the percentage ownership of the combined company, and the parties' ability to consummate the proposed transaction, the Pre-Closing Financing, the composition of the board of directors of the combined company, the expected issuance of the CVRs and the contingent payments contemplated by the CVRs, the combined company's expected cash and the sufficiency of the combined company's cash, cash equivalents and short-term investments to fund operations into mid-2026, the listing of the combined company's shares on Nasdaq, and any statement of assumptions underlying any of the foregoing.

For a discussion of the factors that may cause Homology, Q32 or the combined company's actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied in such forward-looking statements, or for a discussion of risks associated with the ability of Homology and Q32 to complete the Merger and the effect of the Merger on the business of Homology, Q32 and the combined company, see the section titled "*Risk Factors*" beginning on page 30 of this proxy statement/prospectus.

If any of these risks or uncertainties materialize or any of these assumptions prove incorrect, the results of Homology, Q32 or the combined company could differ materially from the forward-looking statements. All forward-looking statements in this proxy statement/prospectus are current only as of the date of this proxy statement/prospectus. Homology and Q32 do not undertake any obligation to (and expressly disclaim any such obligation to) publicly update any forward-looking statement to reflect events or circumstances after the date of this proxy statement/prospectus or to reflect the occurrence of unanticipated events.

QUESTIONS AND ANSWERS

The following section provides answers to frequently asked questions about the Merger, general information about the Homology Special Meeting and voting. For some questions, this section provides only summary information. For a more complete response to these questions and for additional information, please refer to the cross-referenced sections.

Questions and Answers About the Merger

Q: What is the Merger?

A: Homology and Q32 have entered into the Merger Agreement, dated as of November 16, 2023, a copy of which is attached as *Annex A* to this proxy statement/prospectus. The Merger Agreement contains the terms and conditions of the proposed business combination of Homology and Q32. Pursuant to the Merger Agreement, Merger Sub, a direct, wholly owned subsidiary of Homology, will merge with and into Q32, with Q32 surviving as a wholly owned subsidiary of Homology and the surviving corporation. In connection with the Merger, Homology will change its corporate name to "Q32 Bio Inc." In connection with the Merger, Homology is focusing on exploring strategic alternatives for its programs and platform technology, including the sale of its ownership position in Oxford Biomedica (US) LLC, or OXB (US) LLC, formerly known as Oxford Biomedica Solutions LLC, a contract development and manufacturing organization, or CDMO, jointly established by Homology and Oxford Biomedica plc, and the sale of its assets, rights and interests in its program to develop HMI-103 for the treatment of PKU. Upon completion of the Merger, the business of Q32 will continue as the business of the combined company.

Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company on a fully-diluted basis and former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 receiving $42.0 million in gross proceeds in exchange for issuance of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million. As of the date of this proxy statement/prospectus, Homology estimates it will have net cash at the closing of the Merger of approximately $63 million if the Merger closes in the first quarter of 2024. Homology anticipates that several factors could affect Homology's actual net cash at the closing of the Merger, including Homology's ability to enter into strategic partnerships or licensing transactions, potential payments from collaboration partners, CDMO credits or costs, settlements of existing legal proceedings, new legal proceedings or other unforeseen liabilities, including unanticipated costs of former clinical trials and expenses associated with the Merger, and the timing of the closing of the Merger.

Based on Homology's and Q32's capitalization as of November 16, 2023, the date of the Merger Agreement, the exchange ratio is estimated to be equal to approximately 0.88 shares of Homology common stock for each share of Q32 common stock, which has not been adjusted to reflect the proposed Reverse Stock Split and is subject to certain adjustments, including an adjustment for Homology's net cash at closing. The estimated exchange ratio was derived on a fully-diluted basis as of November 16, 2023 using a stipulated value for Q32 of approximately $237.0 million (including the Pre-Closing Financing) and for Homology of approximately $80.0 million and assumes Homology's net cash at closing is equal to $60.0 million. This exchange ratio is an estimate only and the final exchange ratio at closing will be determined pursuant to a formula described in more detail in the Merger Agreement.

At the Effective Time, each share of Q32 common stock (after giving effect to the conversion of each share of Q32's preferred stock into Q32 common stock and the conversion of Q32's convertible notes into Q32 common stock and including all such shares that are converted into Q32 common stock) will be converted

into the right to receive a number of shares of Homology common stock equal to the total number of shares of Homology common stock to be issued in the Merger multiplied by the applicable Q32 stockholder's percentage interest in Q32 as set forth in the Allocation Certificate, and as described in more detail in the section titled "*The Merger Agreement—Allocation Certificate*" beginning on page 194 of the accompanying proxy statement/prospectus. The Q32 common stock that will be converted in the Merger includes Q32 common stock to be issued pursuant to the subscription agreement by and among Q32 and certain investors to purchase shares of Q32's common stock for an aggregate purchase price of approximately $42.0 million, which transaction is referred to as the Pre-Closing Financing. If any Q32 common stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Q32 common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

In connection with the Merger, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will be assumed by Homology and converted, at the Effective Time, into an option to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions), the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price equal to the per share exercise price of such option immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent, as described in more detail in the section titled "*The Merger Agreement—Treatment of Q32 Options*" beginning on page 197 of this proxy statement/prospectus. In addition, at the Effective Time, each unexercised warrant to purchase shares of Q32 common stock outstanding immediately prior to the Effective Time will be assumed by Homology and converted into a warrant to purchase shares of Homology's common stock, with adjustments to the number of shares and the exercise price to reflect the exchange ratio formula in the Merger Agreement, as described in more detail in the section titled "*The Merger Agreement—Treatment of Q32 Warrants*" beginning on page 197 of this proxy statement/prospectus.

Each outstanding Homology ITM Option will vest in full immediately prior to the Effective Time and remain outstanding, subject to proportionate adjustment in accordance with the terms of Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the Reverse Stock Split and the issuance of the CVRs, and each option to purchase Homology common stock that is not a Homology ITM Option will be cancelled for no consideration immediately prior to the Effective Time. Each Homology Restricted Stock Unit that is outstanding will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit.

Q: Why are the two companies proposing to combine?

A: Homology and Q32 believe that combining the two companies will result in a company with a robust pipeline, strong leadership team and substantial capital resources, positioning it to become a leading company researching, developing and commercializing therapies for diseases. The combined company will focus on developing Q32's product candidates, and it is anticipated that the combined company will not continue to develop Homology's legacy product candidates. For a more complete description of the reasons for the Merger, please see the sections titled "*The Merger—Homology Reasons for the Merger*" and "*The Merger—Q32 Reasons for the Merger*" beginning on pages 164 and 168, respectively, of this proxy statement/prospectus.

Q: What will Q32 securityholders receive in the Merger?

A: Q32 stockholders will receive shares of Homology common stock in the Merger, allocated based on the applicable Q32 stockholder's percentage interest in Q32 as set forth in the Allocation Certificate. Immediately after the Merger, former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million. If any Q32 common stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Q32 common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

In connection with the Merger, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will be assumed by Homology and converted, at the Effective Time, into an option to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions), the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price equal to the per share exercise price of such option immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent.

At the Effective Time, each unexercised warrant to purchase shares of Q32 common stock outstanding immediately prior to the Effective Time will be assumed by Homology and converted into a warrant to purchase shares of Homology's common stock, with adjustments to the number of shares and the exercise price to reflect the exchange ratio formula in the Merger Agreement.

Immediately prior to the Effective Time, Q32 will cause the outstanding principal and accrued but unpaid interest on the convertible notes issued by Q32 on May 20, 2022, or the Q32 Convertible Notes, to be converted into the number of shares of Q32 common stock provided for under the terms of such Q32 Convertible Note, or the Q32 Note Conversion. In addition, outstanding preferred stock of Q32, or the Q32 Preferred Stock, will be converted into Q32 common stock immediately prior to the Effective Time in accordance with, and pursuant to the terms and conditions of, the organizational documents of Q32, or the Q32 Preferred Stock Conversion. In connection with the Merger, all shares of Q32 common stock issued pursuant to the Q32 Note Conversion and the Q32 Preferred Stock Conversion will be cancelled and converted into the right to receive Homology common stock in accordance with the terms of the Merger Agreement.

For a more complete description of what Q32 securityholders will receive in the Merger, please see the sections titled "*The Merger Agreement—Merger Consideration*," "*The Merger Agreement—Treatment of Q32 Warrants*" and "*The Merger Agreement—Treatment of Q32 Options*" beginning on pages 193, 197 and 197, respectively, of this proxy statement/prospectus.

Q: Will the common stock of the combined company trade on an exchange?

A: Shares of Homology common stock are currently listed on The Nasdaq Global Select Market, or Nasdaq, under the symbol "FIXX." Q32 intends to file an initial listing application for the combined company with the Nasdaq Stock Market LLC. After completion of the Merger, Homology will be renamed "Q32 Bio Inc." and it is expected that the common stock of the combined company will trade on Nasdaq under the symbol "QTTB."

Q: Who will be the directors of the combined company following the Merger?

A: Immediately following the Merger, the combined company's board of directors will be composed of nine members, consisting of (i) seven current Q32 board members, namely Jodie Morrison, Bill Lundberg, David Grayzel, Diyong Xu, Isaac Manke, Kathleen LaPorte and Mark Iwicki, and (ii) two current Homology board members, namely Arthur Tzianabos, Ph.D. and Mary Thistle. The staggered structure of the Homology board of directors will remain in place for the combined company following the completion of the Merger. Each of the directors other than Jodie Morrison and Arthur Tzianabos will meet the Nasdaq independence requirements.

It is anticipated the director classes of the combined company board of directors will be as follows:

- Class I directors (term ending 2025): David Grayzel, Diyong Xu and Isaac Manke.
- Class II directors (term ending 2026): Arthur Tzianabos, Jodie Morrison and Kathleen LaPorte.
- Class III directors (term ending 2027): Mary Thistle, Mark Iwicki and Bill Lundberg.

Q: Who will be the executive officers of the combined company immediately following the Merger?

A: Immediately following the Merger, the executive management team of the combined company is expected to consist of members of the Q32 executive management team prior to the Merger, including:

Name	Title
Jodie Morrison	President and Chief Executive Officer
Lee Kalowski	Interim Chief Financial Officer
Shelia M. Violette, Ph.D.	Founder & Chief Scientific Officer
Jason A. Campagna, M.D., Ph.D.	Chief Medical Officer

Q: When do you expect the Merger to be consummated?

A: The Merger is anticipated to close in the first quarter of 2024, but the exact timing cannot be predicted. For more information, please see the section titled "*The Merger Agreement—Conditions to the Completion of the Merger*" beginning on page 210 of this proxy statement/prospectus.

Q: As a Homology stockholder, how does Homology's board of directors recommend that I vote?

A: After careful consideration, Homology's board of directors unanimously recommends that Homology stockholders vote "**FOR**" all of the proposals.

Q: What risks should I consider in deciding whether to vote in favor of the Merger?

A: You should carefully review the section titled "*Risk Factors*" beginning on page 30 of this proxy statement/prospectus, which set forth certain risks and uncertainties related to the Merger, risks and uncertainties to which the combined company's business will be subject, and risks and uncertainties to which each of Homology and Q32, as independent companies, are subject.

Q: What is the Q32 Pre-Closing Financing?

A: On November 16, 2023, concurrently with the execution and delivery of the Merger Agreement, Q32 entered into a subscription agreement, or the Subscription Agreement, with certain accredited investors named therein, pursuant to which the investors agreed to purchase shares of Q32 common stock for aggregate gross proceeds of approximately $42.0 million to Q32, which private placement is referred to herein as the Pre-Closing Financing. The closing of the Pre-Closing Financing is conditioned upon the satisfaction or waiver of the conditions to the closing of the Merger as well as certain other conditions.

Immediately after the Merger, the shares of Q32 common stock issued in the Pre-Closing Financing are expected to represent approximately 13.2% of the outstanding shares of the combined company. Q32 and the investors participating in the Pre-Closing Financing have also agreed to enter into a registration rights agreement at the closing of the Pre-Closing Financing, pursuant to which, among other things, the combined company will agree to provide for registration rights for certain shares of the combined company's common stock that are held by the investors participating in the Pre-Closing Financing from time to time.

Q: What are the CVRs being issued to Homology stockholders?

A: Prior to the Effective Time, Homology and Equiniti Trust Company, LLC, as Rights Agent, will enter into a Contingent Value Rights Agreement, or the CVR Agreement, pursuant to which Homology stockholders of record as of the close of business on the last business day prior to the day on which the Effective Time occurs will receive one CVR for each outstanding share of Homology common stock held by such stockholder on such date. A copy of the form of CVR Agreement is included as *Annex D* to this proxy statement/prospectus.

Each CVR will represent the contractual right to receive payments from the combined company upon the actual receipt by the combined company or its subsidiaries of certain contingent proceeds derived from any cash consideration that is paid to the combined company or its subsidiaries as a result of the sale, transfer, license, assignment or other divestiture, disposition or commercialization of the following, or the Legacy Assets, and such disposition, a Legacy Asset Disposition: any of the combined company's assets, rights and interests relating to the combined company's HMI-103 product candidate (Adult/Pediatric PKU), HMI-204 product candidate (MLD) and the combined company's Capsids and AAVHSC Platform, including any equity interests held directly or indirectly by the combined company in Oxford Biomedica (US) LLC or its affiliates, or OXB (US) LLC, pursuant to that certain Equity Securities Purchase Agreement, dated as of January 28, 2022, by and between Homology and OXB (US) LLC, in which the combined company currently owns 20% of the fully diluted equity interests in OXB (US) LLC and the combined company is entitled to exercise a put option to sell or transfer the combined company's equity interests in OXB (US) LLC set forth therein on March 10, 2025, such interests, the Oxford Assets. Payments of the proceeds from a Legacy Asset Disposition will be net of certain taxes, transaction costs and certain other expenses.

During the six months immediately following the Closing Date, the combined company is required to use commercially reasonable efforts to effect dispositions of the then-existing Legacy Assets (i) pursuant to a letter of intent for such Legacy Asset Disposition that was executed prior to the Closing Date, and (ii) to a third party that has delivered a bona fide indication of interest to the combined company subsequent to the Closing Date, provided that such obligation will not apply to the Oxford Assets. The combined company will use commercially reasonable efforts to exercise the put option in the Oxford Assets contemplated by the Amended and Restated Limited Liability Company Agreement, dated March 10, 2022, by and among Oxford Biomedica (US) LLC (f/k/a Oxford Biomedica Solutions LLC and Roadrunner Solutions LLC), Homology and Oxford Biomedica (US) Inc., promptly after such put option becomes exercisable on March 10, 2025. The CVR Agreement states that "commercially reasonable efforts" means carrying out the obligation to dispose of Legacy Assets in a good faith and diligent manner, taking into account the fact that, following the Merger, the Legacy Assets are not part of the combined company's go-forward business plan, taking into account all commercial and other relevant factors that the combined company, exercising good faith, would normally take into account with a disposition of non-core assets. The requirement to use "commercially reasonable efforts" does not require the combined company to (i) hire or retain any business development personnel or third-party financial advisors specifically for the purpose of the Legacy Asset Disposition, or (ii) initiate any bona fide sale process or other proactive efforts to identify potential counterparties with respect to any Legacy Assets.

The contingent payments under the CVR Agreement, if they become payable, will become payable to the Rights Agent for subsequent distribution to the holders of the CVRs. In the event there is no Legacy Asset Disposition (other than with respect to the Oxford Assets) prior to the 18-month anniversary of the closing date of the Merger, or the Closing Date, holders will not receive any payments pursuant to the CVR Agreement with respect to the Legacy Assets (other than possibly the Oxford Assets). If no disposition of

the Oxford Assets occurs prior to the 24-month anniversary of the Closing Date, holders will not receive any payments pursuant to the CVR Agreement with respect to the Oxford Assets. There can be no assurance than any Legacy Asset Disposition (including the disposition of Oxford Assets) will occur or that any holders of CVRs will receive payments with respect thereto.

The right to the contingent payments contemplated by the CVR Agreement is a contractual right only and will not be transferable, except in the limited circumstances specified in the CVR Agreement. The CVRs will not be evidenced by a certificate or any other instrument and will not be registered with the SEC. The CVRs will not have any voting or dividend rights and will not represent any equity or ownership interest in Homology or the combined company or any of its subsidiaries. No interest will accrue on any amounts payable in respect of the CVRs.

For a more detailed description of the CVRs and the CVR Agreement, see "*Agreements Related to the Merger—Contingent Value Rights Agreement*" beginning on page 217 of this proxy statement/prospectus.

Q: What are the material U.S. federal income tax consequences of the issuance of the CVRs and of the receipt of payments on the CVRs (if any) to holders of Homology common stock?

A: The U.S. federal income tax treatment of the CVRs and payments (if any) thereon is uncertain. Except to the extent otherwise required pursuant to a change in applicable law after the date of the CVR Agreement, neither Homology nor the Rights Agent will report the issuance of the CVRs as a current distribution and will report each payment (if any) on the CVRs as a distribution by Homology for U.S. federal income tax purposes. This position may be challenged by the Internal Revenue Service, or the IRS, in which case holders of Homology common stock could be required to recognize taxable income in respect of the issuance of the CVRs without a corresponding receipt of cash. See the section titled "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the CVRs to Holders of Homology Common Stock*" beginning on page 221 for a discussion of the material U.S. federal income tax consequences of the issuance of the CVRs and the receipt of payments (if any) thereon to holders of Homology common stock.

Q: What are the material U.S. federal income tax consequences of the Merger to holders of Q32 common stock?

A: Homology and Q32 intend the Merger to qualify as a "reorganization" within the meaning of Section 368(a) of the Internal Revenue Code of 1986, as amended, or the Code. Subject to the limitations and qualifications described in the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*" beginning on page 226 of this proxy statement/prospectus, in the opinion of Goodwin Procter LLP, or Goodwin Procter, the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Code, and holders of Q32 capital stock will not recognize gain or loss for U.S. federal income tax purposes upon the receipt of shares of Homology common stock in exchange for Q32 capital stock in the Merger. However, if the Merger does not qualify as a "reorganization" within the meaning of Section 368(a) of the Code, the Merger would be a taxable transaction to U.S. Holders (as defined in the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*"), but Non-U.S. Holders (as defined in the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*") generally would not be subject to U.S. federal income tax on any gain realized in connection with the Merger.

The closing of the Merger is not conditioned upon the receipt of an opinion of counsel or a ruling from the IRS regarding the U.S. federal income tax treatment of the Merger, and no opinion of counsel or ruling from the IRS will be requested regarding such treatment. Accordingly, there can be no assurance that the IRS will not challenge the qualification of the Merger as a "reorganization" within the meaning of Section 368(a) of the Code or that a court will not sustain such a challenge by the IRS.

The tax consequences to you of the Merger will depend on your particular facts and circumstances. Please consult your tax advisor as to the tax consequences of the Merger in your particular circumstances, including the applicability and effect of U.S. federal, state, local and foreign income and other tax laws. For

a more detailed discussion of the material U.S. federal income tax consequences of the Merger, see "*Material U.S. Federal Income Tax Consequences of the Merger*" beginning on page 225.

Q: What are the material U.S. federal income tax consequences of the Merger to holders of Homology common stock?

A: There should be no material U.S. federal income tax consequences to Homology stockholders as a result of the Merger because Homology stockholders will not sell, exchange or dispose of any shares of Homology common stock in the Merger.

Questions and Answers About the Homology Special Meeting and Voting

Q: Who is entitled to vote at the Homology Special Meeting?

A: Holders of record of shares of Homology common stock as of the close of business, Eastern Time, on February 5, 2024, or the Record Date, are entitled to notice of and to vote at the Homology Special Meeting and any continuation, postponement or adjournment thereof. At the close of business, Eastern Time, on the Record Date, there were 58,129,740 shares of Homology common stock issued and outstanding and entitled to vote. Each share of Homology common stock is entitled to one vote on any matter presented to stockholders at the Homology Special Meeting.

Q: How do I attend the Homology Special Meeting?

A: The Homology Special Meeting will be held on March 15, 2024 at 9:00 a.m., Eastern Time via a live webcast. You will need the control number that appears on your proxy card, or the Control Number, to attend the meeting. If your shares are held in "street name", you should use your Control Number provided on your notice or voting instruction form, or otherwise vote through the bank, broker or other nominee. The meeting webcast will begin promptly at 8:45 a.m., Eastern Time. You are encouraged to access the meeting prior to the start time. Homology will have technicians ready to assist you with any technical difficulties you may have accessing the virtual meeting. If you encounter any difficulties accessing the virtual meeting during check-in or the meeting, please call the technical support number that will be posted on the virtual meeting platform log-in page.

Q: What proposals will be voted on at the Homology Special Meeting?

A: Pursuant to the terms of the Merger Agreement, the Stock Issuance Proposal must be approved by the requisite stockholder vote at the Homology Special Meeting in order for the Merger to close. Approval of the Authorized Share Increase Proposal and the Reverse Stock Split Proposal are also conditions to completion of the Merger. Therefore, the Merger cannot be consummated without the approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

In addition, each of the other closing conditions set forth in the Merger Agreement must be satisfied or waived for the Merger to close. For a more complete description of the closing conditions under the Merger Agreement, please see the section titled "*The Merger Agreement—Conditions to the Completion of the Merger*" beginning on page 210 of this proxy statement/prospectus.

At the Homology Special Meeting, the holders of Homology common stock will also be asked to consider the following proposals:

- A proposal to approve on an advisory, non-binding basis certain compensation arrangements for Homology's named executive officers in connection with the Merger;
- A proposal to approve the 2024 Stock Option and Incentive Plan;
- A proposal to approve the 2024 Employee Stock Purchase Plan; and
- A proposal to adjourn the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

The approval of the Merger Compensation Proposal, the Stock Option and Incentive Plan Proposal, the ESPP Proposal and the Adjournment Proposal is not a condition to the Merger closing.

Q: What are the material U.S. federal income tax consequences of the proposed Reverse Stock Split to U.S. Holders of Homology common stock?

A: A U.S. Holder (as defined in the section titled "*Matters Being Submitted to a Vote of Homology Stockholders—Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split—Material U.S. Federal Income Tax Consequences of the Reverse Stock Split to U.S. Holders of Homology Common Stock*" beginning on page 246) of Homology common stock generally should not recognize gain or loss upon the proposed Reverse Stock Split, except to the extent such holder receives cash in lieu of a fractional share of Homology common stock, and subject to the discussion in the section titled "*Matters Being Submitted to a Vote of Homology Stockholders—Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split—Material U.S. Federal Income Tax Consequences of the Reverse Stock Split to U.S. Holders of Homology Common Stock*" beginning on page 246, which provides a more complete description of the material U.S. federal income tax consequences of the Reverse Stock Split to U.S. Holders of Homology common stock, including possible alternative treatments.

Q: As a Homology stockholder, how does Homology's board of directors recommend that I vote?

A: After careful consideration, Homology's board of directors unanimously recommends that Homology stockholders vote "**FOR**" all of the proposals.

Q: How do I vote my shares?

A: Homology recommends that stockholders vote by proxy even if they plan to attend the Homology Special Meeting and vote electronically. If you are a stockholder of record, there are three ways to vote by proxy:

- by Telephone-You can vote by telephone by calling 1-800-690-6903 and following the instructions on the proxy card;
- by Internet-You can vote over the Internet at http://www.proxyvote.com by following the instructions on the proxy card; or
- by Mail-You can vote by mail by signing, dating and mailing the proxy card, which you may have received by mail.

Telephone and Internet voting facilities for stockholders of record will be available 24 hours a day and will close at 11:59 p.m., Eastern Time on March 14, 2024.

If you attend the Homology Special Meeting online, you will need the 16-digit control number included on your proxy card or on the instructions that accompanied your proxy materials to vote electronically during the meeting.

Whether or not you expect to attend the Homology Special Meeting online, we urge you to vote your shares as promptly as possible to ensure your representation and the presence of a quorum at the Homology Special Meeting. If you submit your proxy, you may still decide to attend the Homology Special Meeting and vote your shares electronically.

If your shares are held in "street name" through a bank or broker, you will receive instructions on how to vote from the bank or broker. You must follow their instructions in order for your shares to be voted. Internet and telephone voting also may be offered to stockholders owning shares through certain banks and brokers. If your shares are not registered in your own name and you would like to vote your shares electronically at the Homology Special Meeting, you should contact your bank or broker to obtain your 16-digit control number or otherwise vote through the bank or broker. If you lose your 16-digit control number, you may join the Homology Special Meeting as a "Guest" but you will not be able to vote, ask

questions or access the list of stockholders as of the Record Date. You will need to obtain your own Internet access if you choose to attend the Homology Special Meeting online and/or vote over the Internet.

Q: What is the difference between being a "record holder" and holding shares in "street name"?

A: A record holder (also called a "registered holder") holds shares in his or her name. Shares held in "street name" means that shares are held in the name of a bank, broker or other nominee on the holder's behalf.

Q: What do I do if my shares are held in "street name"?

A: If your shares are held in a brokerage account or by a bank or other holder of record, you are considered the "beneficial owner" of shares held in "street name." This proxy statement/prospectus has been forwarded to you by your broker, bank or other nominee who is considered, with respect to those shares, the stockholder of record. As the beneficial owner, you have the right to direct your broker, bank or nominee on how to vote your shares by following their instructions for voting. Please refer to the information from your bank, broker or other nominee on how to submit your voting instructions.

Q: What are broker non-votes?

A: A "broker non-vote" occurs when shares held by a broker in "street name" for a beneficial owner are not voted with respect to a proposal because (1) the broker has not received voting instructions from the stockholder who beneficially owns the shares and (2) the broker lacks the authority to vote the shares at their discretion.

A broker is entitled to vote shares held for a beneficial owner on routine matters without instructions from the beneficial owner of those shares. On the other hand, absent instructions from the beneficial owner of such shares, a broker is not entitled to vote shares held for a beneficial owner on non-routine matters.

It is anticipated that all of the proposals currently scheduled for consideration at the Homology Special Meeting will be considered "non-routine" matters, and a broker will lack the authority to vote shares at its discretion on such proposals. Consequently, Homology expects that there will not be any broker non-votes at the Homology Special Meeting. If broker non-votes were received, they would not have any impact on the outcome of the proposals.

Q: How many shares must be present to hold the Homology Special Meeting?

A: A quorum must be present at the Homology Special Meeting for any business to be conducted. The holders of a majority in voting power of Homology capital stock issued and outstanding and entitled to vote, present by remote communication or represented by proxy, constitutes a quorum. If you sign and return your paper proxy card or authorize a proxy to vote electronically or telephonically, your shares will be counted to determine whether there is a quorum even if you abstain or fail to vote.

Broker non-votes will also be considered present for the purpose of determining whether there is a quorum for the Homology Special Meeting.

Q: What if a quorum is not present at the Homology Special Meeting?

A: If a quorum is not present or represented at the scheduled time of the Homology Special Meeting, (i) the chairperson of the Homology Special Meeting or (ii) a majority in voting power of the stockholders entitled to vote at the Homology Special Meeting, present in person, or by remote communication, if applicable, or represented by proxy, may adjourn the Homology Special Meeting until a quorum is present or represented.

Q: How many votes are required to approve each proposal?

A: The table below summarizes the proposals that will be voted on, the vote required to approve each item and how votes are counted:

Proposal	Votes Required	Voting Options	Impact of "Abstain" Votes and Broker Non-Votes
Proposal No. 1: Approval of the Issuance of Common Stock in the Merger and the Change of Control Resulting from the Merger	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 2: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Authorized Share Increase	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 4: Approval on an advisory, non-binding basis of the Merger Compensation Proposal	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 5: Approval of the 2024 Stock Option and Incentive Plan	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 6: Approval of the 2024 Employee Stock Purchase Plan	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 7: Approval of Adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)

(1) A vote marked as an "Abstention" is not considered a vote cast and will, therefore, not affect the outcome of this proposal.

Certain stockholders of Homology have entered into stockholder support agreements pursuant to which they have agreed to vote all shares of Homology common stock owned by them as of the Record Date in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal and against any competing "acquisition proposal" (as defined in the support agreements). As of the Record Date, the Homology stockholders that are party to a support agreement owned approximately 18.3% of the outstanding shares of Homology common stock. These stockholders include certain executive officers and directors of Homology.

Q: What happens if I do not vote or submit a proxy but do not provide voting instructions?

A: Failure to vote will have no effect on any of the proposals. If you submit a proxy but do not provide any voting instructions, the persons named as proxies will vote in accordance with the recommendations of the Homology board of directors. The Homology board of director's recommendations are set forth above, as well as with the description of each proposal in this proxy statement/prospectus.

Q: Can I revoke or change my vote after I submit my proxy?

A: Yes. If you are a stockholder of record, you may revoke your proxy and change your vote:

- by submitting a duly executed proxy bearing a later date;
- by granting a subsequent proxy through the Internet or telephone;
- by giving written notice of revocation to the Secretary of Homology prior to or at the Homology Special Meeting; or
- by voting electronically at the Homology Special Meeting.

Your most recent proxy card or Internet or telephone proxy is the one that is counted. Your attendance at the Homology Special Meeting by itself will not revoke your proxy unless you give written notice of revocation to the Secretary of Homology before your proxy is voted or you vote electronically at the Homology Special Meeting.

Q: How can I find out the results of the voting at the Homology Special Meeting?

A: Preliminary voting results will be announced at the Homology Special Meeting. Final voting results will be published in a Current Report on Form 8-K, or Form 8-K, that Homology will file with the SEC within four business days after the Homology Special Meeting. If final voting results are not available in time to file a Form 8-K within four business days after the Homology Special Meeting, Homology intends to file a Form 8-K to publish preliminary results and, within four business days after the final results are known, file an additional Form 8-K to publish the final results.

Q: What does it mean if I receive more than one set of proxy materials?

A: It means that your shares are held in more than one account at the transfer agent and/or with banks, brokers or other nominees in "street name" as described below. Please vote all of your shares. To ensure that all of your shares are voted, for each set of proxy materials, please submit your proxy by phone, via the Internet, or, if you received printed copies of the proxy materials, by signing, dating and returning the enclosed proxy card in the enclosed envelope.

Q: Who can help answer my questions?

A: If you are a Homology stockholder and would like additional copies of this proxy statement/prospectus without charge or if you have questions about the Homology Special Meeting, including the procedures for voting your shares, you should contact:

Morrow Sodali LLC
430 Park Avenue, 14th Floor
New York, NY 10022
Banks and Brokers Call: (203) 658-9400
Stockholders Call Toll Free: (800) 662-5200

If your shares are held in street name, please contact your bank, broker or other nominee.

To ensure timely delivery of documents prior to the Homology Special Meeting, any requests must be made no later than 11:59 p.m., Eastern Time, on March 8, 2024.

PROSPECTUS SUMMARY

This summary highlights selected information from this proxy statement/prospectus and may not contain all of the information that is important to you. To better understand the Merger and the proposals being considered at the Homology Special Meeting, you should read this entire proxy statement/prospectus carefully, including the Merger Agreement and the other annexes to which you are referred in this proxy statement/prospectus.

The Companies

Homology Medicines, Inc.
One Patriots Park
Bedford, MA 01730
Telephone: (781) 327-2633
Attn: Paul Alloway, Ph.D.

Homology is a clinical-stage genetic medicines company historically focused on transforming the lives of patients suffering from rare genetic diseases with significant unmet medical needs by addressing the underlying cause of the disease. Homology's proprietary platform is designed to utilize its human hematopoietic stem cell-derived adeno-associated virus vectors, or AAVHSCs, to precisely and efficiently deliver single administration genetic medicines *in vivo* through a nuclease-free gene editing modality, gene therapy, or gene therapy to express antibodies platform, or GTx-mAb, which is designed to produce antibodies throughout the body. Homology's former clinical programs include: HMI-103, an investigational gene editing candidate for the treatment of patients with phenylketonuria, or PKU, HMI-203, an investigational gene therapy candidate for the treatment of patients with mucopolysaccharidosis type II (MPS II), or Hunter syndrome, and HMI-102, an investigational gene therapy candidate for the treatment of adult patients with PKU. Homology's former preclinical programs include: HMI-104, a GTx-mAb gene therapy candidate for the treatment of patients with paroxysmal nocturnal hemoglobinuria, or PNH, and HMI-204, a gene therapy candidate for metachromatic leukodystrophy, or MLD.

In July 2023, Homology announced that it had completed a review of its business and the Homology board of directors had approved a plan to explore, review and evaluate a range of potential strategic options available to Homology, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Based on the financing environment and Homology's anticipated clinical development timeline for its lead program, HMI-103, Homology also announced that it was stopping further development of its programs and reduced its workforce by 86% in an effort to significantly reduce its ongoing operating costs as it evaluated strategic alternatives. The workforce reduction was substantially completed in the third quarter of 2023.

On November 16, 2023, Homology entered into the Merger Agreement with Q32 and Merger Sub. Upon completion of the Merger, the business of Q32 will continue as the business of the combined company.

Kenobi Merger Sub, Inc.
One Patriots Park
Bedford, MA 01730
Telephone: (781) 327-2633
Attn: Paul Alloway, Ph.D.

Merger Sub is a direct, wholly owned subsidiary of Homology and was formed solely for the purpose of carrying out the Merger.

Q32 Bio Inc.
830 Winter Street
Waltham, MA 02451
Telephone: (781) 999-0232

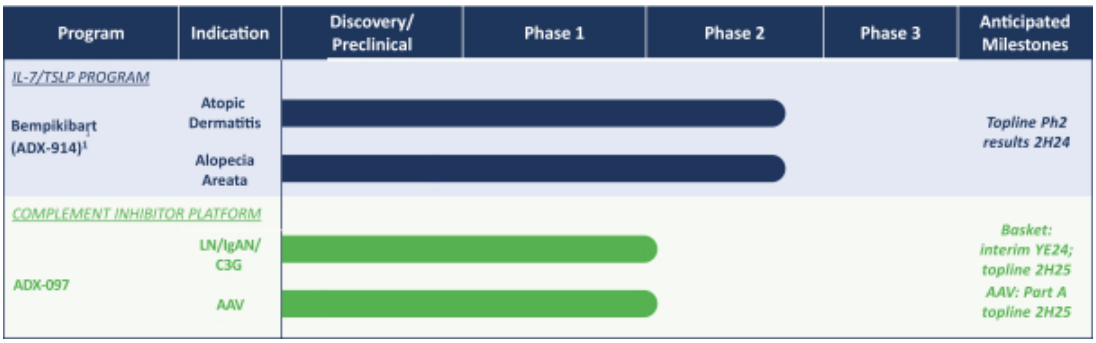
Q32 is a clinical stage biotechnology company focused on developing novel biologics to effectively and safely restore healthy immune balance in patients with autoimmune and inflammatory diseases driven by pathological immune dysfunction. To achieve the goal of restoring homeostasis to a dysregulated immune system, Q32 is advancing antibody-based therapeutic candidates designed to target two central pathways of adaptive and innate immunity. The adaptive immune system is largely composed of T- and B-cell mediated cellular and antibody responses, while the innate immune system is the body's first line of defense employing leukocytes that are responsible for clearing pathogens and cellular debris and modulating T- and B-cell function. Q32 believes that targeting these key pathways of immune dysregulation in autoimmune and inflammatory diseases will deliver therapeutics for indications with clear unmet medical need in the near term, while enabling it to build a broad and diverse pipeline in the long term. Q32 has multiple product candidates across a variety of autoimmune and inflammatory diseases with clinical readouts for its two lead programs expected in 2024 and 2025.

Bempikibart (ADX-914), Q32's most advanced product candidate, is a fully human anti–interleukin-7 receptor alpha antagonist monoclonal antibody designed to re-regulate adaptive immune function by blocking signaling mediated by interleukin-7 and thymic stromal lymphopoietin. Bempikibart is being studied in two double-blind, placebo-controlled Phase 2 clinical trials designed to establish proof of clinical concept and evaluate Q32's selected Phase 2 dose. One trial is evaluating the use of bempikibart for the treatment of atopic dermatitis and one is evaluating bempikibart for the treatment of alopecia areata. Enrollment in both clinical trials remains ongoing and Q32 remains on-track to report topline data from both Phase 2 clinical trials in the second half of 2024.

ADX-097, the lead product candidate from Q32's complement inhibitor platform, is a humanized anti-C3d monoclonal antibody fusion protein. ADX-097 is designed to restore complement regulation – an integral part of the innate immune system – through a tissue-targeted mechanism. ADX-097 is designed to inhibit alternative pathway complement activation locally in diseased tissues where complement-mediated pathology is actively manifest. Q32 believes ADX-097 has the potential to drive improved clinical activity and address the limitations of the currently available systemic approaches to complement inhibition, including infection risk and the need for high drug doses and frequent administration, to achieve therapeutic levels of inhibition. Q32 is developing ADX-097 for the treatment of renal and other complement-mediated diseases of high unmet need, including lupus nephritis, immunoglobulin A nephropathy, complement component 3 glomerulopathy and anti-neutrophil cytoplasmic antibody-associated vasculitis. Q32 has completed a Phase 1 clinical trial of ADX-097 in healthy volunteers. Q32 expects to initiate an open-label Phase 2 renal basket program in the first half of 2024, with initial data expected by year-end 2024, and initiate a Phase 2 clinical trial in AAV, with topline data from both the renal basket and AAV trials anticipated in the second half of 2025.

In addition to ADX-097, Q32 is also engaged in additional pipeline efforts to expand therapeutic opportunities within complement-mediated diseases.

Q32's development pipeline is shown in the figure below.



Note: AAV = Anti-Neutrophil Cytoplasmic Autoantibody (ANCA)-Associated Vasculitis; IgAN = IgA Nephropathy; LN = Lupus Nephritis; C3G = C3 Glomerulopathy. (1) Regained full development and commercial rights in November 2023.

The Merger (See page 156)

On November 16, 2023, Homology entered into the Merger Agreement with Q32 and Merger Sub, pursuant to which Merger Sub will merge with and into Q32, with Q32 surviving as a direct, wholly-owned subsidiary of Homology. In connection with the Merger, Homology will change its corporate name to "Q32 Bio Inc." Upon completion of the Merger, the business of Q32 will continue as the business of the combined company.

Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company on a fully-diluted basis and former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million. As of the date of this proxy statement/prospectus, Homology estimates it will have net cash at the closing of the Merger of approximately $63 million if the Merger closes in the first quarter of 2024. Homology anticipates that several factors could affect Homology's actual net cash at the closing of the Merger, including Homology's ability to enter into strategic partnerships or licensing transactions, potential payments from collaboration partners, CDMO credits or costs, settlements of existing legal proceedings, new legal proceedings or other unforeseen liabilities, including unanticipated costs of former clinical trials and expenses associated with the Merger, and the timing of the closing of the Merger.

At the Effective Time, each share of Q32 common stock (after giving effect to the conversion of each share of Q32's preferred stock into Q32 common stock and the conversion of Q32's convertible notes into Q32 common stock and including all such shares that are converted into Q32 common stock) will be converted into the right to receive a number of shares of Homology common stock equal to the total number of shares of Homology common stock to be issued in the Merger multiplied by the applicable Q32 stockholder's percentage interest in Q32 as set forth in the Allocation Certificate. The Q32 common stock that will be converted in the Merger includes Q32 common stock to be issued pursuant to the subscription agreement by and among Q32 and certain investors to purchase shares of Q32's common stock for an aggregate purchase price of approximately

$42.0 million, which transaction is referred to as the Pre-Closing Financing. If any Q32 common stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Homology common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

In connection with the Merger, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will be assumed by Homology and will be converted, at the Effective Time, into an option to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions) as were applicable under the Q32 equity plan and applicable option agreement immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price equal to the per share exercise price of such option immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent, and each unexercised warrant to purchase shares of Q32 common stock outstanding immediately prior to the Effective Time will be assumed by Homology and converted into a warrant to purchase shares of Homology common stock, with adjustments to the number of shares and the exercise price to reflect the exchange ratio formula in the Merger Agreement.

Each share of Homology common stock that is issued and outstanding at the Effective Time will remain issued and outstanding and such shares, subject to the Reverse Stock Split, will be unaffected by the Merger.

Each outstanding Homology ITM Option will vest in full immediately prior to the Effective Time and remain outstanding, subject to proportionate adjustment in accordance with the terms of Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the Reverse Stock Split and the issuance of the CVRs, and each option to purchase Homology common stock that is not a Homology ITM Option will be cancelled for no consideration immediately prior to the Effective Time. Each Homology Restricted Stock Unit that is outstanding will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit.

The Merger will be completed as promptly as practicable, but in no event later than two business days after all of the conditions precedent set forth in the Merger Agreement have been satisfied or waived (other than those conditions that, by their nature, are to be satisfied at the closing of the Merger) or at such other time, date and place as Homology and Q32 may mutually agree in writing, including the approval by the Homology stockholders of the issuance of Homology common stock in the Merger. The Merger is anticipated to close promptly after the Homology Special Meeting scheduled to be held on March 15, 2024. However, Homology and Q32 cannot predict the exact timing of the completion of the Merger because it is subject to the satisfaction or waiver of various conditions.

For a more complete description of the Merger, please see the sections titled "*The Merger*" and "*The Merger Agreement*" in this proxy statement/prospectus.

Reasons for the Merger (See pages 164 and 168)

Homology Reasons for the Merger

In the course of evaluating the Merger, the Homology board of directors held numerous meetings and consulted with Homology's senior management, legal counsel and financial advisor, and, in reaching its decision to approve the Merger, the Homology board of directors considered a wide variety of factors, including, among others, the following material factors (which factors are not necessarily presented in any order of relative importance):

- the review of the business, financial position and prospects of Homology on a standalone basis, and the determination that Homology could not reasonably be expected to fund its programs on a standalone basis without substantial additional investment;
- the current financial market conditions and historical market prices, volatility and trading information with respect to Homology common stock, as well as the unfavorable state of the capital-raising environment for biotechnology companies in general which would make it challenging for Homology to raise additional capital;
- the review of the business, strategy, financial position and prospects of Q32 and, in that context, the potential for Q32's clinical development pipeline to generate substantial long-term value for the combined company and its stockholders;
- the view that no alternatives to the Merger (including remaining a standalone company, a liquidation or dissolution of Homology to distribute any available cash, and alternative strategic transactions) were reasonably likely to create greater value for Homology's stockholders; and
- that the Merger would provide Homology's stockholders with (i) a significant opportunity to participate in the potential growth of the combined company following the Merger by virtue of their continued ownership of the combined company's common stock, and (ii) the potential to receive certain cash payments following the closing of the Merger pursuant to the CVR Agreement.

Q32 Reasons for the Merger

In the course of reaching its decision to approve the Merger, the Q32 board of directors held numerous meetings, consulted with Q32's senior management, its financial advisors and legal counsel, and considered a wide variety of factors, including, among others, the following material factors (which factors are not necessarily presented in any order of relative importance):

- the Merger will potentially expand the access to capital and the range of investors available as a public company to support the clinical development of Q32's pipeline, compared to the investors Q32 could otherwise gain access to if it continued to operate as a privately-held company;
- the potential benefits from increased public market awareness of Q32 and its pipeline;
- the historical and current information concerning Q32's business, including its financial performance and condition, operations, management and pre-clinical data;
- the expected financial position, operations, management structure and operating plans of the combined company (including the ability to support the combined company's current and planned pre-clinical and clinical trials); and
- the terms and conditions of the Merger Agreement.

Opinion of Homology's Financial Advisor (See page 170)

Homology has engaged Cowen and Company, LLC, or TD Cowen, as Homology's financial advisor in connection with the Merger. In connection with this engagement, TD Cowen delivered a written opinion, dated

November 15, 2023, to the Homology board of directors as to the fairness, from a financial point of view and as of the date of such opinion, to Homology of the Q32 Equity Value provided for pursuant to the Merger Agreement. For purposes of TD Cowen's financial analyses and opinion, the term "Q32 Equity Value" refers to the equity value of $195 million ascribed to Q32 pursuant to the Merger Agreement. **The full text of TD Cowen's written opinion, dated November 15, 2023, is attached as *Annex H* to this proxy statement/prospectus and is incorporated herein by reference. The summary of TD Cowen's written opinion set forth herein is qualified in its entirety by reference to the full text of such opinion. TD Cowen's analyses and opinion were prepared for and addressed to the Homology board of directors and were directed only to the fairness, from a financial point of view, to Homology of the Q32 Equity Value. TD Cowen's opinion did not in any manner address any other aspect or implication of the Merger, including the Homology Valuation, the exchange ratio formula in the Merger Agreement or the value of the Homology CVRs, nor did TD Cowen's opinion address Homology's underlying business decision to effect the Merger or related transactions or the relative merits of the Merger or related transactions as compared to other business strategies or transactions that might be available to Homology. The Q32 Equity Value was determined through negotiations between Homology and Q32 and TD Cowen's opinion does not constitute a recommendation to any securityholder or any other person as to how to vote or act with respect to the Merger, any related transactions or otherwise.**

Interests of Certain Directors and Executive Officers of Homology and Q32 (See pages 178 and 186)

Interests of Homology Directors and Executive Officers in the Merger

In considering the recommendation of the Homology board of directors with respect to issuing shares of Homology common stock in the Merger and the other matters to be acted upon by the Homology stockholders at the Homology Special Meeting, Homology stockholders should be aware that the directors and executive officers of Homology have interests in the Merger that may be different from, or in addition to, the interests of Homology stockholders generally.

Homology is party to an employment agreement with each of Paul Alloway, Ph.D., J.D. and Charles Michaud, Jr., and separation agreements with each of Albert Seymour, Ph.D. and W. Bradford Smith. Under the employment agreements, Dr. Alloway and Mr. Michaud are entitled to a transaction bonus payable upon the completion of the Merger and, if their employment is terminated by Homology without "cause" or by the executive for "good reason," the executive is entitled to certain severance payments and benefits, including partial payment of the transaction bonus. Under the separation agreements with Dr. Seymour and Mr. Smith, the executive is entitled to certain severance payments and benefits and, if the Merger closes on or before August 16, 2024, payment of a transaction bonus, accelerated vesting of all Homology options and restricted stock units, an extended post-termination exercise period for options and, for Dr. Seymour, additional severance payments and benefits. Such severance payments and benefits provided under the employment agreements and separation agreements are subject to the executive's execution and non-revocation of a release of claims in favor of Homology and continued compliance with certain restrictive covenants. Homology is also party to a consulting agreement with Mr. Blum, which provides for accelerated vesting of Homology options and restricted stock units if Mr. Blum's consulting period is terminated other than due to his breach of the consulting agreement or certain restrictive covenants, and an extended post-termination exercise period for his Homology options. Each of the employment agreements, separation agreements and consulting agreement is more fully described below in the section titled "*The Merger—Interests of Homology Directors and Executive Officers in the Merger*" beginning on page 178 of this proxy statement/prospectus.

Arthur Tzianabos, Ph.D. and Mary Thistle are currently directors of Homology and will continue as directors of the combined company after the Effective Time. Following the Effective Time, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing.

As of February 5, 2024, Homology's non-employee directors and executive officers beneficially owned, in the aggregate, approximately 10.2% of the shares of Homology common stock, excluding any shares of Homology common stock issuable upon exercise or settlement of stock options or restricted stock units or held by such individuals.

The Homology board of directors was aware of and considered these potential conflicts of interest, among other matters, in reaching its decision to approve the Merger Agreement and the Merger, and to recommend that the Homology stockholders approve the proposals to be presented to the stockholders for consideration at the Homology Special Meeting as contemplated in this proxy statement/prospectus. For more information, please see the section titled "*The Merger—Interests of Homology Directors and Executive Officers in the Merger*" beginning on page 178 of this proxy statement/prospectus.

Interests of Q32 Directors and Executive Officers in the Merger

In considering the recommendation of the Q32 board of directors with respect to approving the Merger, stockholders should be aware that certain members of Q32's directors and executive officers have interests in the Merger that are different from, or in addition to, the interests of Q32 stockholders generally.

As described elsewhere in this proxy statement/prospectus, including in the section captioned "*Management Following the Merger*," seven of Q32's directors and all of Q32's executive officers are expected to become the directors and executive officers, respectively, of the combined company upon the closing of the Merger, in connection with which the executive officers may enter into employment agreements comparable to those of applicable executive officers of a publicly traded company. Following completion of the Merger, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing, and which will be designed to enable the combined company to attract and retain, on a long-term basis, highly qualified non-employee directors.

As of December 31, 2023, Q32's non-employee directors and executive officers beneficially owned, in the aggregate, approximately 42.70% of the shares of Q32 capital stock, which for purposes of this subsection excludes any Q32 shares issuable upon exercise of Q32 stock options held by such individuals. Such shares of Q32 capital stock will be converted into shares of Homology common stock at the Effective Time.

These interests may present them with actual or potential conflicts of interest. The board of directors of Q32 was aware of these potential conflicts of interest and considered them, among other matters, in reaching its decision to approve the Merger Agreement and the Merger, and to recommend that the Q32 stockholders approve the Merger as contemplated by this proxy statement/prospectus. For more information, please see the section titled "*The Merger—Interests of Q32 Directors and Executive Officers in the Merger*" beginning on page 186 of this proxy statement/prospectus.

Overview of the Merger Agreement and Agreements Related to the Merger Agreement

Merger Consideration *(see page 193)*

At the Effective Time (after giving effect to the Pre-Closing Financing), each share of Q32 common stock (excluding the Q32 common stock issued in the Pre-Closing Financing) will be converted solely into the right to receive a number of shares of Homology common stock equal to the total number of Q32 Merger Shares described in the section titled "*The Merger Agreement—Q32 Merger Shares*" beginning on page 194 in this proxy statement/prospectus multiplied by the applicable Q32 stockholder's percentage interest in Q32 as set forth on the Allocation Certificate required under the Merger Agreement. If any Q32 common stock outstanding

immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Q32 common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

At the Effective Time, by virtue of the Merger, upon the terms and subject to the conditions set forth in the Merger Agreement, each share of Q32 common stock issued in the Pre-Closing Financing will be converted solely into the right to receive a number of shares of Homology common stock equal to the amount of the Pre-Closing Financing Merger Shares described in the section titled "*The Merger Agreement—Pre-Closing Financing Merger Shares*" beginning on page 195 in this proxy statement/prospectus multiplied by the percentage of the proceeds of the Pre-Closing Financing represented by the applicable stockholder's investment in the Pre-Closing Financing, as set forth on the Allocation Certificate required under the Merger Agreement.

At the Effective Time, by virtue of the Merger, upon the terms and subject to the conditions set forth in the Merger Agreement, each share of common stock, $0.01 par value per share, of Merger Sub issued and outstanding immediately prior to the Effective Time will be converted into and exchanged for one validly issued, fully paid and nonassessable share of common stock, $0.0001 par value per share, of the combined company.

All Q32 preferred stock will be converted into Q32 common stock as of immediately prior to the Effective Time in accordance with, and pursuant to the terms and conditions of, the organizational documents of Q32.

Treatment of Q32 Options *(see page 197)*

At the Effective Time, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will automatically be converted into an option to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions) the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price determined by dividing the per share exercise price of such Q32 Option immediately prior to the Effective Time by the exchange ratio formula in the Merger Agreement, rounding up to the nearest whole cent.

Treatment of Q32 Warrants *(see page 197)*

At the Effective Time, each Q32 Warrant, to the extent outstanding and unexercised, will automatically be converted into a warrant to acquire a number of shares of Homology common stock (each such resulting warrant, is referred to herein as an Assumed Warrant). Each Assumed Warrant shall be subject to the same terms and conditions as were applicable to such corresponding Q32 Warrant immediately prior to the Effective Time (including applicable vesting conditions), except (i) each Assumed Warrant will be exercisable (or will become exercisable in accordance with its terms) for that number of whole shares of Homology common stock equal to the product of the number of shares of Q32 common stock that were issuable upon exercise of such Q32 Warrant immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded down to the nearest whole number of shares of Homology Common Stock, (ii) the per share exercise price for the shares of Homology Common Stock issuable upon exercise of such Assumed Warrant will be equal to the quotient determined by dividing the exercise price per share of Q32 common stock at which such Q32 Warrant was exercisable immediately prior to the Effective Time by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent, and (iii) for terms rendered inoperative by reason of the transactions contemplated by the Merger Agreement.

Treatment of Homology Common Stock, Homology Options and Homology Restricted Stock Units *(see page 197)*

Each outstanding unexpired, unexercised and unvested "in-the-money" option of Homology (referred to herein as Homology ITM Options) will vest in full immediately prior to the Effective Time and remain outstanding, subject to proportionate adjustment in accordance with the terms of Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the Reverse Stock Split and the issuance of the CVRs, and each option to purchase Homology common stock that is not a Homology ITM Option will be cancelled for no consideration immediately prior to the Effective Time. Each Homology Restricted Stock Unit that is outstanding will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit.

Conditions to the Completion of the Merger *(see page 210)*

To complete the Merger, Homology stockholders must approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, and Q32 must adopt the Merger Agreement and approve the Merger and the additional transactions contemplated thereby. Additionally, each of the other closing conditions set forth in the Merger Agreement must be satisfied or waived.

Non-Solicitation *(see page 204)*

Under the Merger Agreement, each of Homology and Q32 have agreed that neither it nor any of its subsidiaries, directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors or representatives, will directly or indirectly:

- solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of any Acquisition Proposal or Acquisition Inquiry or take any action not in the ordinary course of business that could reasonably be expected to lead to an Acquisition Proposal or Acquisition Inquiry;
- furnish any non-public information regarding such party to any person (other than Q32 or Homology) in connection with or in response to an Acquisition Proposal or Acquisition Inquiry;
- engage in discussions or negotiations with any person with respect to such Acquisition Proposal or Acquisition Inquiry;
- approve, endorse or recommend any Acquisition Proposal;
- execute or enter into any letter of intent or any contract contemplating or otherwise relating to any Acquisition Transaction; or
- publicly proposed to do any of the foregoing.

The Merger Agreement affords Homology certain fiduciary exceptions to the non-solicitation provisions to allow the Homology board of directors to consider a Superior Offer (as defined in the section of this proxy statement/prospectus entitled "*The Merger Agreement—Non Solicitation*") under certain circumstances.

Board Recommendation Change *(see page 206)*

Homology and Q32 agreed (and, with respect to Homology, subject to specified exceptions described in the Merger Agreement and in the section of this proxy statement/prospectus entitled "*The Merger Agreement—*

Board Recommendation Change" beginning on page 206) that their boards of directors may not take any of the following actions:

- withhold, amend, withdraw or modify (or publicly propose to withhold, amend, withdraw or modify) the recommendation of their boards of directors in a manner adverse to the other party;
- resolve, or have any committee of their boards of directors resolve, to withdraw or modify their recommendation in a manner adverse to the other party; or
- adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal.

Termination of the Merger Agreement *(see page 211)*

Either Homology or Q32 may terminate the Merger Agreement under certain circumstances, which would prevent the Merger from being consummated.

Termination Fee *(see page 211)*

If the Merger Agreement is terminated under certain circumstances, either Homology could be required to pay Q32 a termination fee of $2.4 million, or Q32 could be required to pay Homology a termination fee of $5.85 million.

Support Agreements *(see page 215)*

Certain Q32 stockholders are party to support agreements with Homology pursuant to which, among other things, each such stockholder has agreed, solely in his, her or its capacity as a Q32 stockholder, to vote all of his, her or its shares of Q32 capital stock in favor of (i) the adoption of the Merger Agreement and approval of the Merger, (ii) the approval of the related transactions contemplated by the Merger Agreement, (iii) the conversion of each share of Q32 preferred stock into shares of Q32 common stock immediately prior to and contingent upon the closing and (iv) the approval of certain additional proposals in connection with the Merger that the Q32 board of directors may recommend. These Q32 stockholders also agreed to vote against (i) any competing Acquisition Proposal (as defined in the section of this proxy statement/prospectus entitled "*The Merger Agreement—Non-Solicitation*" beginning on page 204) and (ii) any action, proposal, agreement, transaction or proposed transaction that would reasonably be expected to materially impede, interfere with, delay, postpone, discourage or adversely affect the Merger or any of the other transactions contemplated by the Merger Agreement, subject to certain specified exceptions.

As of December 31, 2023, the Q32 stockholders that are party to support agreements with Homology owned an aggregate of 1,693,680 shares of Q32 common stock and 84,305,730 shares of Q32 preferred stock, representing approximately 73.9% of the outstanding shares of Q32 common stock and Q32 preferred stock. These stockholders include executive officers and directors of Q32, as well as certain other stockholders owning a significant portion of the outstanding shares of Q32 capital stock. Following the effectiveness of the registration statement on Form S-4 of which this proxy statement/prospectus is a part and pursuant to the Merger Agreement, Q32 stockholders holding a sufficient number of shares of Q32 capital stock to adopt the Merger Agreement and approve the Merger and related transactions will execute written consents providing for such adoption and approval.

Certain Homology stockholders have entered into support agreements with Q32 pursuant to which, among other things, each such stockholder has agreed, solely in his, her or its capacity as a Homology stockholder, to vote all of his, her or its shares of Homology common stock in favor of (i) the approval of the Merger Agreement, (ii) the

transactions contemplated thereby, including the issuance of Homology common stock to Q32 stockholders, (iii) an amendment to the restated certificate of incorporation of Homology to effect the proposed Reverse Stock Split, (iv) any proposal to adjourn or postpone the meeting to a later date, if there are not sufficient votes for the approval of the Merger Agreement and the transactions contemplated therein and (v) the approval of certain additional proposals in connection with the Merger that the Homology board of directors may recommend. These Homology stockholders also agreed to vote against (i) any action or agreement that would result in a breach of any representation, warranty, covenant or obligation of Homology in the Merger Agreement, (ii) any competing Acquisition Proposal (as defined in the section of this proxy statement/prospectus entitled "*The Merger Agreement—Non-Solicitation*" beginning on page 204) with respect to Homology and (iii) any action, proposal, agreement, transaction or proposed transaction that would reasonably be expected to materially impede, interfere with, delay, postpone, discourage or adversely affect the Merger or any of the other transactions contemplated by the Merger Agreement, subject to certain specified exceptions.

As of February 5, 2024, the Homology stockholders that are party to a support agreement owned approximately 18.3% of the outstanding shares of Homology common stock. These stockholders include certain executive officers and directors of Homology.

Lock-Up Agreements *(see page 216)*

Certain of Q32's executive officers, directors and stockholders have entered into lock-up agreements, pursuant to which such parties have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, sell any option to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any shares of Homology's common stock, including, as applicable, shares received in the Merger and shares issuable upon exercise of options, warrants or convertible securities, until 180 days after the Effective Time.

The Q32 stockholders who have executed lock-up agreements as of December 31, 2023, owned in the aggregate, approximately 73.9% of the outstanding shares of Q32 common stock and Q32 preferred stock.

Certain of Homology's directors have entered into lock-up agreements, pursuant to which such stockholders have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, sell any option to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any Homology securities or shares of Homology common stock, including, as applicable, shares issuable upon exercise of certain options, warrants or convertible securities, until 180 days after the Effective Time.

Homology stockholders who have executed lock-up agreements as of February 5, 2024 owned, in the aggregate, less than 1% of the shares of outstanding Homology common stock.

The Q32 Pre-Closing Financing *(see page 217)*

On November 16, 2023, concurrently with the execution and delivery of the Merger Agreement, Q32 entered into a subscription agreement, or the Subscription Agreement, with certain accredited investors pursuant to which such investors agreed to purchase shares of Q32 common stock for aggregate gross proceeds of approximately $42.0 million to Q32, which private placement is referred to herein as the Pre-Closing Financing. The closing of the Pre-Closing Financing is conditioned upon the satisfaction or waiver of the conditions to the closing of the Merger as well as certain other conditions. Immediately after the Merger, the shares of Q32 common stock issued in the Pre-Closing Financing are expected to represent approximately 13.2% of the outstanding shares of the combined company. Q32 and the investors participating in the Pre-Closing Financing have also agreed to enter into the registration rights agreement at the closing of the Pre-Closing Financing,

pursuant to which, among other things, the combined company will agree to provide for registration rights for certain shares of the combined company's common stock that are held by the investors participating in the Pre-Closing Financing from time to time.

Contingent Value Rights Agreement *(see page 217)*

Prior to the Effective Time, Homology and Equiniti Trust Company, LLC, as Rights Agent, will enter into the CVR Agreement pursuant to which Homology stockholders of record as of the close of business on the last business day prior to the day on which the Effective Time occurs will receive one CVR for each outstanding share of Homology common stock held by such stockholder on such date. A copy of the form of CVR Agreement is included as *Annex D* to this proxy statement/prospectus.

Each CVR will represent the contractual right to receive payments from the combined company upon the actual receipt by the combined company or its subsidiaries of certain contingent proceeds derived from any cash consideration that is paid to the combined company or its subsidiaries as a result of the sale, transfer, license, assignment or other divestiture, disposition or commercialization of the following (referred to herein as the Legacy Assets, and such disposition, a Legacy Asset Disposition): any of the combined company's assets, rights and interests relating to the combined company's HMI-103 product candidate (Adult/Pediatric PKU), HMI-204 product candidate (MLD) and the combined company's Capsids and AAVHSC Platform, including any equity interests held directly or indirectly by the combined company in Oxford Biomedica (US) LLC or its affiliates, referred to herein as OXB (US) LLC, pursuant to that certain Equity Securities Purchase Agreement, dated as of January 28, 2022, by and between Homology and OXB (US) LLC, in which the combined company currently owns 20% of the fully diluted equity interests in OXB (US) LLC and the combined company is entitled to exercise a put option to sell or transfer the combined company's equity interests in OXB (US) LLC set forth therein on March 10, 2025; such interests are referred to herein as the Oxford Assets. Payments of the proceeds from a Legacy Asset Disposition will be net of certain taxes, transaction costs and certain other expenses.

During the six months immediately following the Closing Date, the combined company is required to use commercially reasonable efforts to effect dispositions of the then-existing Legacy Assets (i) pursuant to a letter of intent for such Legacy Asset Disposition that was executed prior to the Closing Date, and (ii) to a third party that has delivered a bona fide indication of interest to the combined company subsequent to the Closing Date, provided that such obligation will not apply to the Oxford Assets. The combined company will use commercially reasonable efforts to exercise the put option in the Oxford Assets contemplated by the Amended and Restated Limited Liability Company Agreement, dated March 10, 2022, by and among Oxford Biomedica (US) LLC (f/k/a Oxford Biomedica Solutions LLC and Roadrunner Solutions LLC), Homology and Oxford Biomedica (US) Inc., promptly after such put option becomes exercisable on March 10, 2025. The CVR Agreement states that "commercially reasonable efforts" means carrying out the obligation to dispose of Legacy Assets in a good faith and diligent manner, taking into account the fact that, following the Merger, the Legacy Assets are not part of the combined company's go-forward business plan, taking into account all commercial and other relevant factors that the combined company, exercising good faith, would normally take into account with a disposition of non-core assets. The requirement to use "commercially reasonable efforts" does not require the combined company to (i) hire or retain any business development personnel or third-party financial advisors specifically for the purpose of the Legacy Asset Disposition, or (ii) initiate any bona fide sale process or other proactive efforts to identify potential counterparties with respect to any Legacy Assets.

The contingent payments under the CVR Agreement, if they become payable, will become payable to the Rights Agent for subsequent distribution to the holders of the CVRs. In the event there is no Legacy Asset Disposition (other than with respect to the Oxford Assets) prior to the 18-month anniversary of the closing of the Merger, holders will not receive any payments pursuant to the CVR Agreement with respect to the Legacy Assets (other than possibly the Oxford Assets). If no disposition of the Oxford Assets occurs prior to the 24-month anniversary of the closing of the Merger, holders will not receive any payments pursuant to the CVR Agreement

with respect to the Oxford Assets. There can be no assurance than any Legacy Asset Disposition (including the disposition of Oxford Assets) will occur or that any holders of CVRs will receive payments with respect thereto.

The right to the contingent payments contemplated by the CVR Agreement is a contractual right only and will not be transferable, except in the limited circumstances specified in the CVR Agreement. The CVRs will not be evidenced by a certificate or any other instrument and will not be registered with the SEC. The CVRs will not have any voting or dividend rights and will not represent any equity or ownership interest in Homology or the combined company or any of its subsidiaries. No interest will accrue on any amounts payable in respect of the CVRs.

Management Following the Merger (*See page 395*)

Effective as of the closing of the Merger, the combined company's executive officers are expected to be members of the Q32 executive management team prior to the Merger, including:

Name	Title
Jodie Morrison	President and Chief Executive Officer
Lee Kalowski.	Interim Chief Financial Officer
Shelia Violette, Ph.D.	Founder & Chief Scientific Officer
Jason Campagna, M.D., Ph.D.	Chief Medical Officer

Material U.S. Federal Income Tax Consequences of the Merger (See page 226)

Homology and Q32 intend the Merger to qualify as a "reorganization" within the meaning of Section 368(a) of the Code and the applicable United States Treasury regulations thereunder and the Merger Agreement to constitute a "plan of reorganization" within the meaning of Section 368 and Treasury Regulations Section 1.368-2(g). Subject to the limitations and qualifications described in the section titled "*The Merger-Material U.S. Federal Income Tax Consequences of the Merger*" beginning on page 226 of this proxy statement/prospectus, in the opinion of Goodwin Procter, the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Code, and holders of Q32 capital stock will not recognize gain or loss for U.S. federal income tax purposes upon the receipt of shares of Homology common stock in exchange for Q32 capital stock in the Merger. However, if the Merger does not qualify as a "reorganization" within the meaning of Section 368(a) of the Code, the Merger would be a taxable transaction to U.S. Holders (as defined in the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*"), but Non-U.S. Holders (as defined in the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*") generally would not be subject to U.S. federal income tax on any gain realized in connection with the Merger. The closing of the Merger is not conditioned upon the receipt of an opinion of counsel or a ruling from the IRS regarding the U.S. federal income tax treatment of the Merger, and no opinion of counsel or ruling from the IRS will be requested regarding such treatment. Accordingly, there can be no assurance that the IRS will not challenge the qualification of the Merger as a "reorganization" within the meaning of Section 368(a) of the Code or that a court will not sustain such a challenge by the IRS.

The tax consequences to you of the Merger will depend on your particular facts and circumstances. Please consult your tax advisor as to the tax consequences of the Merger in your particular circumstances, including the applicability and effect of U.S. federal, state, local and foreign income and other tax laws. For a more detailed discussion of the material U.S. federal income tax consequences of the Merger, see "*Material U.S. Federal Income Tax Consequences of the Merger*" beginning on page 226.

Nasdaq Stock Market Listing (*See page* 189)

Q32 intends to file an initial listing application for the combined company common stock with the Nasdaq Stock Market LLC. If such application is accepted, Homology anticipates that the common stock of the combined company will be listed on Nasdaq following the closing of the Merger under the trading symbol "QTTB."

Anticipated Accounting Treatment (*See page* 188)

The Merger is expected to be treated by Homology as a reverse merger and will be accounted for as a reverse recapitalization in accordance with United States Generally Accepted Accounting Principles, or U.S. GAAP. For accounting purposes, Q32 is considered to be acquiring the assets and liabilities of Homology in this transaction based on the terms of the Merger Agreement and other factors, including: (i) Q32's stockholders will own a substantial majority of the voting rights of the combined company; (ii) Q32 will designate a majority (seven of nine) of the initial members of the board of directors of the combined company; (iii) Q32's executive management team will become the management of the combined company; and (iv) the combined company will be named Q32 Bio Inc. and be headquartered in Waltham, Massachusetts. Accordingly the Merger is expected to be treated as the equivalent of Q32 issuing stock for primarily cash and cash equivalents, short-term investments and non-operating assets. The net assets of Homology will be recorded as of the acquisition date in the financial statements of Q32 and the reported operating results prior to the Merger will be those of Q32. See "*Unaudited Pro Forma Condensed Combined Financial Statements*" included elsewhere in this proxy statement/prospectus for additional information.

Appraisal Rights and Dissenters' Rights (*See page* 189)

Stockholders of Homology common stock are not entitled to appraisal rights in connection with the Merger under Delaware law. Stockholders of Q32 common stock are entitled to appraisal rights in connection with the Merger under Delaware law.

Comparison of Stockholder Rights (*See page* 438)

Both Homology and Q32 are incorporated under the laws of the State of Delaware and, accordingly, the rights of the stockholders of each are currently, and will continue to be, governed by the Delaware General Corporation Law, or the DGCL. If the Merger is completed, Q32 stockholders will become Homology stockholders, and their rights will be governed by the DGCL, the Amended and Restated Bylaws of Homology and the Restated Certificate of Incorporation of Homology, as may be amended by the Authorized Share Increase Proposal and the Reverse Stock Split Proposal if approved by the Homology stockholders at the Homology Special Meeting. The rights of Homology stockholders contained in the Restated Certificate of Incorporation, as amended, and Amended and Restated Bylaws of Homology differ from the rights of Q32 stockholders under the Second Amended and Restated Certificate of Incorporation and Bylaws of Q32, as more fully described under the section titled "*Comparison of Rights of Holders of Homology Capital Stock and Q32 Capital Stock*" beginning on page 438 of this proxy statement/prospectus.

Risk Factors (*See page* 30)

Both Homology and Q32 are subject to various risks associated with their businesses and their industries. In addition, the Merger, including the possibility that the Merger may not be completed, poses a number of risks to each company and its respective securityholders, including the following risks:

Risks Related to the Merger

- The exchange ratio will not be adjusted based on the market price of Homology common stock so the merger consideration at the closing may have a greater or lesser value than at the time the Merger Agreement was signed.

- Failure to complete the Merger may result in Homology or Q32 paying a termination fee to the other party, which could harm the Homology common stock price and the future business and operations of each company.
- Some Homology and Q32 executive officers and directors have interests in the Merger that are different from yours and that may influence them to support or approve the Merger without regard to your interests.
- Homology stockholders and Q32 stockholders may not realize a benefit from the Merger commensurate with the ownership dilution they will experience in connection with the Merger.
- If the conditions to the Merger are not satisfied or waived, the Merger may not occur.
- If the Merger is not completed, Homology's stock price may decline significantly.

Risks Related to Homology

- Failure to complete, or delays in completing, the proposed Merger with Q32 could expose Homology to other operational and financial risks.
- Homology stockholders may not receive any payment on the CVRs, and the CVRs may expire valueless.
- Homology's stockholders may not realize a benefit from the Merger commensurate with the ownership dilution they will experience in connection with the Merger.
- Homology has a limited operating history, no history of commercializing products, has incurred significant losses since inception and anticipates continuing to incur net losses for the foreseeable future.
- If the Merger is not consummated and should Homology resume development of product candidates, it will require additional capital to fund its operations.
- If Homology fails to obtain necessary financing, it will not be able to complete the development and commercialization of such product candidates.
- Homology's failure to meet Nasdaq's continued listing requirements could result in a delisting of its common stock.

Risks Related to Q32

- Q32 has incurred significant losses since inception, expects to incur significant losses for the foreseeable future and may not be able to achieve or sustain profitability in the future. Q32 has no products for sale, has not generated any product revenue and may never generate product revenue or become profitable.
- Even if the Merger and Q32's Pre-Closing Financing are successful, Q32 will require substantial additional capital to finance its operations in the future. If Q32 is unable to raise such capital when needed, or on acceptable terms, Q32 may be forced to delay, reduce or eliminate clinical trials, product development programs or future commercialization efforts.
- Q32 has a limited operating history and has no products approved for commercial sale, which may make it difficult for you to evaluate its current business and likelihood of success and viability.
- Q32 faces competition from entities that have developed or may develop programs for the diseases it plans to address with bempikibart, ADX-097 or other product candidates.

- Bempikibart, ADX-097 and Q32's pipeline are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability. If Q32 or its current or future collaborators are unable to complete development of, or commercialize, Q32's product candidates, or experience significant delays in doing so, its business will be materially harmed.
- Q32 is substantially dependent on the success of its most advanced product candidates, bempikibart and ADX-097, and its clinical trials of such candidates may not be successful.
- Q32's business relies on certain licensing rights from BMS that can be terminated in certain circumstances. If Q32 breaches the BMS License Agreement, or if we are unable to satisfy our obligations under which we license intellectual property from BMS, we could lose the ability to develop and commercialize bempikibart.
- Q32's ability to protect its patents and other proprietary rights is uncertain, exposing it to the possible loss of competitive advantage.
- Q32 and its independent registered public accounting firm have identified a material weakness in its internal control over financial reporting. If Q32 is unable to remediate this material weakness, or if it identifies additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, it may not be able to accurately or timely report its financial condition or results of operations, which may adversely affect its business and the market price of the combined company's common stock.

Risks Related to the Combined Company

- The market price of the combined company's common stock is expected to be volatile, and the market price of the common stock may drop following the Merger.
- The combined company may incur losses for the foreseeable future and might never achieve profitability.
- If the combined company fails to attract and retain management and other key personnel, it may be unable to continue to successfully develop or commercialize its product candidates or otherwise implement its business plan.
- The combined company will need to raise additional financing in the future to fund its operations, which may not be available to it on favorable terms or at all.
- Upon completion of the Merger, failure by the combined company to comply with the initial listing standards of Nasdaq will prevent its stock from being listed on Nasdaq.

These risks and other risks are discussed in greater detail under the section titled "*Risk Factors*" beginning on page 30 of this proxy statement/prospectus. Homology and Q32 both encourage you to read and consider all of these risks carefully.

MARKET PRICE AND DIVIDEND INFORMATION

Shares of Homology common stock are currently listed on Nasdaq under the symbol "FIXX." The closing price of Homology common stock on November 15, 2023, the last trading day prior to the public announcement of the Merger, was $0.88 per share, as reported on Nasdaq. The closing price of the Homology common stock on February 13, 2024, as reported on Nasdaq, was $0.7067 per share.

Because the market price of Homology common stock is subject to fluctuation, the market value of the shares of Homology common stock that Q32 stockholders will be entitled to receive in the Merger may increase or decrease.

Q32 is a private company, and its shares of common stock and preferred stock are not publicly traded.

Assuming approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, and successful application for initial listing with Nasdaq, following the consummation of the Merger, the Homology common stock will trade on Nasdaq under Homology's new name, "Q32 Bio Inc.," and new trading symbol "QTTB."

As of February 5, 2024, the Record Date for the Homology Special Meeting, there were approximately 15 holders of record of the Homology common stock. As of February 5, 2024, Q32 had 29 holders of record of Q32 common stock and 12 holders of record of Q32 preferred stock. For detailed information regarding the beneficial ownership of certain Homology and Q32 stockholders, see the sections of this proxy statement/prospectus titled "*Principal Stockholders of Homology*" and "*Principal Stockholders of Q32*."

Dividends

Homology has never declared or paid cash dividends on its capital stock. Q32 has never paid or declared any cash dividends on its capital stock. Q32 intends to retain all available funds and any future earnings for use in the operation of its business and does not anticipate paying any cash dividends on its capital stock in the foreseeable future. Notwithstanding the foregoing, any determination to pay cash dividends subsequent to the Merger will be at the discretion of the combined company's board of directors and will depend upon a number of factors, including the combined company's results of operations, financial condition, future prospects, contractual restrictions, restrictions imposed by applicable law and other factors the combined company's board of directors deems relevant.

RISK FACTORS

The combined company will be faced with a market environment that cannot be predicted and that involves significant risks, many of which will be beyond its control. In addition to the other information contained in this proxy statement/prospectus, you should carefully consider the material risks described below before deciding how to vote your shares of Homology common stock. You should also read and consider the other information in this proxy statement/prospectus.

Risks Related to the Merger

The exchange ratio will not be adjusted based on the market price of Homology common stock so the merger consideration at the closing may have a greater or lesser value than at the time the Merger Agreement was signed.

At the Effective Time, outstanding shares of Q32 common stock (after giving effect to the conversion of each share of Q32's preferred stock into Q32 common stock and the conversion of the Q32 Convertible Notes into Q32 common stock and including all such shares that are converted into Q32 common stock) will be converted into shares of Homology common stock. Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company on a fully-diluted basis and former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million.

Any changes in the market price of Homology common stock before the completion of the Merger will not affect the number of shares Q32 stockholders will be entitled to receive pursuant to the Merger Agreement. Therefore, if before the completion of the Merger, the market price of Homology common stock increases from the market price on the date of the Merger Agreement, then Q32 stockholders could receive merger consideration with substantially more value for their shares of Q32 common stock than the parties had negotiated when they established the exchange ratio. Similarly, if before the completion of the Merger the market price of Homology common stock declines from the market price on the date of the Merger Agreement, then Q32 stockholders could receive merger consideration with substantially lower value. The Merger Agreement does not include a price-based termination right.

Based on Homology's and Q32's capitalization as of November 16, 2023, the date of the Merger Agreement, the exchange ratio is estimated to be equal to approximately 0.88 shares for Homology common stock for each share for Q32 common stock, which has not been adjusted to reflect the proposed Reverse Stock Split and is subject to certain adjustments, including an adjustment for Homology's net cash at closing. The estimated exchange ratio was derived on a fully-diluted basis as of November 16, 2023 using a stipulated value for Q32 of approximately $237.0 million (including the Pre-Closing Financing) and for Homology of approximately $80.0 million and assumes Homology's net cash at closing is equal to $60.0 million. This exchange ratio is an estimate only and the final exchange ratio at closing will be determined pursuant to a formula described in more detail in the Merger Agreement

Failure to complete the Merger may result in Homology paying a termination fee to Q32, which could harm the Homology common stock price and future business and operations of Homology.

If the Merger is not completed, Homology is subject to the following risks:

- if the Merger Agreement is terminated under specified circumstances, Homology may be required to pay Q32 a termination fee of $2.4 million;

- the price of Homology common stock may decline and could fluctuate significantly; and
- costs related to the Merger, such as financial advisor, legal and accounting fees, which Homology estimates will total approximately $5.6 million, which must be paid even if the Merger is not completed.

If the Merger Agreement is terminated and the board of directors of Homology determines to seek another business combination, there can be no assurance that Homology will be able to find a partner with whom a business combination would yield greater benefits than the benefits to be provided under the Merger Agreement.

If the conditions to the Merger are not satisfied or waived, the Merger may not occur.

Even if the Merger is approved by the stockholders of Q32 and the Stock Issuance Proposal is approved by the Homology stockholders, specified conditions must be satisfied or waived to complete the Merger. These conditions are set forth in the Merger Agreement and described in the section titled "*The Merger Agreement—Conditions to the Completion of the Merger*" in this proxy statement/prospectus. Homology and Q32 cannot assure you that all of the conditions to the consummation of the Merger will be satisfied or waived. If the conditions are not satisfied or waived, the Merger may not occur or the closing may be delayed, and Homology and Q32 each may lose some or all of the intended benefits of the Merger.

The Merger may be completed even though a material adverse effect may result from the announcement of the Merger, industry-wide changes or other causes.

In general, neither Homology nor Q32 is obligated to complete the Merger if there is a material adverse effect affecting the other party between November 16, 2023, the date of the Merger Agreement, and the closing of the Merger. However, certain types of changes are excluded from the concept of a "material adverse effect." Such exclusions include but are not limited to changes in general economic or political conditions, changes resulting from the announcement of the Merger, natural disasters, pandemics, other force majeure events, acts or threats of terrorism or war and changes in GAAP. Therefore, if any of these events were to occur impacting Homology or Q32, the other party would still be obliged to consummate the closing of the Merger. If any such adverse changes occur and Homology and Q32 consummate the closing of the Merger, the stock price of the combined company may suffer. This in turn may reduce the value of the Merger to the stockholders of Homology, Q32 or both. For a more complete discussion of what constitutes a material adverse effect on Homology or Q32, see the section titled "*The Merger Agreement—Representations and Warranties*" in this proxy statement/prospectus.

If Homology and Q32 complete the Merger, the combined company will need to raise additional capital by issuing equity securities or additional debt or through licensing arrangements, which may cause significant dilution to the combined company's stockholders or restrict the combined company's operations.

Additional financing may not be available to the combined company when it is needed or may not be available on favorable terms. To the extent that the combined company raises additional capital by issuing equity securities, such financing will cause additional dilution to all securityholders of the combined company, including Homology's pre-Merger stockholders and Q32's former securityholders. It is also possible that the terms of any new equity securities may have preferences over the combined company's common stock. Any debt financing the combined company enters into may involve covenants that restrict its operations. These restrictive covenants may include limitations on additional borrowing and specific restrictions on the use of the combined company's assets, as well as prohibitions on its ability to create liens, pay dividends, redeem its stock or make investments. In addition, if the combined company raises additional funds through licensing arrangements, it may be necessary to grant licenses on terms that are not favorable to the combined company.

Some Homology and Q32 directors and executive officers have interests in the Merger that are different from yours and that may influence them to support or approve the Merger without regard to your interests.

Directors and executive officers of Homology and Q32 may have interests in the Merger that are different from, or in addition to, the interests of other Homology stockholders generally. These interests with respect to Homology's directors and executive officers may include, among others, acceleration of Homology ITM Options, Homology Restricted Stock Units, transaction bonus payments, severance payments and benefits if employment is terminated in a qualifying termination in connection with the Merger and rights to continued indemnification, expense advancement and insurance coverage. Arthur Tzianabos, Ph.D. and Mary Thistle, current members of the Homology board of directors will continue as directors of the combined company after the Effective Time. Following the Effective Time, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing. These interests with respect to Q32's directors and executive officers may include, among others, certain of Q32's directors and executive officers have options, subject to vesting, to purchase shares of Q32 common stock which, after the Effective Time, will be converted into and become options to purchase shares of the common stock of the combined company; Q32's executive officers are expected to continue as executive officers of the combined company after the Effective Time; and all of Q32's directors and executive officers are entitled to certain indemnification and liability insurance coverage pursuant to the terms of the Merger Agreement. Further, certain current members of Q32's board of directors will continue as directors of the combined company after the Effective Time, and, following the Effective Time, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing.

The board of directors of both Homology and Q32 were aware of and considered these interests, among other matters, in reaching their decisions to approve and adopt the Merger Agreement, approve the Merger, approve the issuance of Homology common stock in the Merger, and recommend the approval of the Merger Agreement to Q32 stockholders and the issuance of the Homology common stock to Q32 stockholders in the Merger to the Homology stockholders. These interests, among other factors, may have influenced the directors and executive officers of Homology and Q32 to support or approve the Merger.

For more information regarding the interests of Homology and Q32 directors and executive officers in the Merger, please see the sections titled "*The Merger—Interests of Homology Directors and Executive Officers in the Merger*" and "*The Merger—Interests of Q32 Directors and Executive Officers in the Merger*" in this proxy statement/prospectus.

Homology stockholders may not realize a benefit from the Merger commensurate with the ownership dilution they will experience in connection with the Merger.

If the combined company is unable to realize the full strategic and financial benefits currently anticipated from the Merger, Homology stockholders will have experienced substantial dilution of their ownership interests without receiving any commensurate benefit, or only receiving part of the commensurate benefit to the extent the combined company is able to realize only part of the strategic and financial benefits currently anticipated from the Merger.

If the Merger is not completed, Homology's stock price may decline significantly.

The market price of Homology common stock is subject to significant fluctuations. During the 12-month period ended February 13, 2024, the closing sales price of Homology common stock on Nasdaq ranged from a high of $1.60 on February 23, 2023 to a low of $0.5309 on November 28, 2023. Market prices for securities of pharmaceutical, biotechnology and other life science companies have historically been particularly volatile. In addition, the market price of Homology common stock will likely be volatile based on whether stockholders and other investors believe that Homology can complete the Merger or otherwise raise additional

capital to support Homology's operations if the Merger is not consummated and another strategic transaction cannot be identified, negotiated and consummated in a timely manner, if at all. The volatility of the market price of Homology common stock is exacerbated by low trading volume. Additional factors that may cause the market price of Homology common stock to fluctuate include:

- adverse publicity relating to the combined company's business and product candidates;
- the loss of key employees;
- future sales of common stock;
- general and industry-specific economic conditions;
- the failure to meet industry analyst expectations; and
- period-to-period fluctuations in financial results.

See also "*Risks related to Homology common stock—The market price of Homology common stock has been volatile and fluctuated and may in future fluctuate substantially, which could result in substantial losses for Homology's stockholders*". Moreover, the stock markets in general have experienced substantial volatility that has often been unrelated to the operating performance of individual companies. These broad market fluctuations may also adversely affect the trading price of Homology common stock. In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against such companies.

Homology and Q32 securityholders will have a reduced ownership and voting interest in, and will exercise less influence over the management of, the combined company following the completion of the Merger as compared to their current ownership and voting interests in the respective companies.

After the completion of the Merger, the current stockholders of Homology and Q32 will own a smaller percentage of the combined company than their ownership of their respective companies prior to the Merger. Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company on a fully-diluted basis and former Q32 securityholders (including purchasers in the Pre-Closing Financing) are expected to own approximately 75% of the outstanding shares of the combined company on a fully-diluted basis, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus. Under certain circumstances further described in the Merger Agreement, the ownership percentages may be adjusted up or down including, but not limited to, if Homology's net cash as of closing is lower than $59.5 million or greater than $60.5 million.

During the pendency of the Merger, Homology and Q32 may not be able to enter into a business combination with another party on more favorable terms because of restrictions in the Merger Agreement, which could adversely affect their respective business prospects.

Covenants in the Merger Agreement impede the ability of Homology and Q32 to make acquisitions during the pendency of the Merger, subject to specified exceptions. As a result, if the Merger is not completed, the parties may be at a disadvantage to their competitors during that period. In addition, while the Merger Agreement is in effect, each party is generally prohibited from soliciting, proposing, seeking or knowingly encouraging, facilitating or supporting any inquiries, indications of interest, proposals or offers that constitute or may reasonably be expected to lead to certain transactions involving a third party, including a merger, sale of assets or other business combination, subject to specified exceptions. Any such transactions could be favorable to such party's stockholders, but the parties may be unable to pursue them. For more information, see the section titled "*The Merger Agreement—Non-Solicitation*" this proxy statement/prospectus.

Certain provisions of the Merger Agreement may discourage third parties from submitting competing proposals, including proposals that may be superior to the transactions contemplated by the Merger Agreement.

The terms of the Merger Agreement prohibit each of Homology and Q32 from soliciting competing proposals or cooperating with persons making unsolicited takeover proposals, except in limited circumstances as described in further detail in the section titled "*The Merger Agreement—Non-Solicitation*" in this proxy statement/prospectus. In addition, if Homology terminates the Merger Agreement under specified circumstances, Homology may be required to pay Q32 a termination fee of $2.4 million. This termination fee may discourage third parties from submitting competing proposals to Homology or its stockholders, and may cause the Homology board of directors to be less inclined to recommend a competing proposal.

Because the lack of a public market for Q32's stock makes it difficult to evaluate the fair market value of Q32's stock, Homology may pay more than the fair market value of Q32's stock and/or the stockholders of Q32 may receive consideration in the Merger that is less than the fair market value of Q32's stock.

The outstanding Q32 common stock is privately held and is not traded in any public market. The lack of a public market makes it difficult to determine the fair market value of Q32's stock. Because the percentage of Homology equity to be issued to Q32 stockholders was determined based on negotiations between the parties, it is possible that the value of the Homology common stock to be received by Q32 stockholders will be less than the fair market value of Q32's stock, or Homology may pay more than the aggregate fair market value for Q32's stock.

Homology stockholders may not receive any payment on the CVRs, and the CVRs may expire valueless.

The right of Homology stockholders to receive any future payment on or derive any value from the CVRs will be contingent solely upon the occurrence of the Legacy Asset Dispositions within the time periods specified in the CVR Agreement and the consideration received being greater than the amounts permitted to be withheld or deducted by Homology under the CVR Agreement. There is no guarantee that Homology will be able to successfully collaborate or sell any of these assets or establish a viable entity to manage the development of these assets. In the event that no Legacy Asset Dispositions occur within the time periods specified in the CVR Agreement, no payments will be made under the CVR Agreement, and the CVRs will expire valueless.

Furthermore, the CVRs will be unsecured obligations of the combined company and all payments under the CVRs, all other obligations under the CVR Agreement and the CVRs and any rights or claims relating thereto may be subordinated in right of payment to the prior payment in full of all current or future senior obligations of the combined company.

The tax treatment of the CVRs is unclear.

The U.S. federal income tax treatment of the CVRs is unclear. There is no legal authority directly addressing the U.S. federal income tax treatment of the receipt of, holding of or payments under, the CVRs, and there can be no assurance that the IRS would not assert, or that a court would not sustain, a position that could result in adverse U.S. federal income tax consequences to holders of the CVRs.

For example, as discussed in the section titled "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the CVRs to Holders of Homology Common Stock*" in this proxy statement/prospectus, Homology does not intend to report the issuance of the CVRs as a current distribution of property with respect to its stock, but it is possible that the IRS could assert that Homology stockholders are treated as having received a distribution of property equal to the fair market value of the CVRs on the date the CVRs are distributed, which could be taxable to Homology stockholders without the corresponding receipt of cash. In addition, it is possible that the IRS or a court could determine that the issuance

of the CVRs (and/or any payments thereon) and the Reverse Stock Split constitute a single "recapitalization" for U.S. federal income tax purposes with the CVRs constituting taxable "boot" received in such recapitalization exchange. In such case, the tax consequences of the CVRs and the Reverse Stock Split would differ from those described in this proxy statement/prospectus, including with respect to the timing and character of income.

Stockholders could file lawsuits relating to the merger

As of the date of this proxy statement / prospectus, there are no pending lawsuits challenging the Merger. However, potential plaintiffs may file lawsuits challenging the Merger. The outcome of any future litigation is uncertain. Such litigation, if not resolved, could prevent or delay consummation of the Merger and result in substantial costs to Homology, Q32, or the combined company, including any costs associated with the indemnification of directors and officers. One of the closing conditions is the absence of any order or legal requirement that restrains, enjoins, or otherwise prevents the consummation of the Merger. Therefore, if a plaintiff were successful in obtaining an injunction prohibiting the consummation of the Merger on the agreed-upon terms, then such injunction may prevent the Merger from being consummated, or from being consummated within the expected time frame.

If the Merger does not qualify as a reorganization under the Internal Revenue Code of 1986, as amended, or the Code, U.S. holders of Q32 capital stock may be taxed on the full amount of the consideration received in the Merger.

As discussed more fully under the section titled "*Material U.S. Federal Income Tax Consequences of the Merger*," and subject to the limitations and qualifications described therein, in the opinion of Goodwin Procter, the Merger will qualify for U.S. federal income tax purposes as a "reorganization" within the meaning of Section 368(a) of the Code and no gain will be recognized by U.S. holders of Q32 capital stock who receive only Homology common stock in the Merger. None of the parties to the Merger Agreement have sought or intend to seek any ruling from the IRS regarding the qualification of the Merger as a reorganization within the meaning of Section 368(a) of the Code. If the Merger does not qualify for the U.S. federal income tax treatment described herein, U.S. holders of Q32 capital stock may be taxed on any gain realized up to the full fair market value of any Homology common stock they receive in the Merger.

Risks Related to the Proposed Reverse Stock Split

The Reverse Stock Split may not increase the combined company's stock price over the long-term.

The principal purpose of the Reverse Stock Split is to (i) increase the per-share market price of Homology common stock above the minimum bid price requirement under the Nasdaq rules so that Homology can maintain its listing on Nasdaq and (ii) increase the number of theorized and unissued shares available for future issuance in connection with the merger. It cannot be assured, however, that the Reverse Stock Split will accomplish this objective for any meaningful period of time. While it is expected that the reduction in the number of outstanding shares of common stock will proportionally increase the market price of Homology common stock, it cannot be assured that the Reverse Stock Split will increase the market price of its common stock by enough to maintain the listing of Homology common stock on Nasdaq, or result in any permanent or sustained increase in the market price of Homology common stock, which is dependent upon many factors, including Homology's business and financial performance, general market conditions, and prospects for future success. Thus, while the stock price of Homology might meet the continued listing requirements for Nasdaq initially, it cannot be assured that it will continue to do so.

The Reverse Stock Split may decrease the liquidity of the combined company's common stock.

Although the Homology board of directors believes that the anticipated increase in the market price of the combined company's common stock resulting from the proposed Reverse Stock Split could encourage interest in its common stock and possibly promote greater liquidity for its stockholders, such liquidity could also be

adversely affected by the reduced number of shares outstanding after the Reverse Stock Split. The reduction in the number of outstanding shares may lead to reduced trading and a smaller number of market makers for the combined company's common stock. In addition, the Reverse Stock Split may not result in an increase in the combined company's stock price necessary to satisfy Nasdaq's initial listing requirements for the combined company.

The Reverse Stock Split may lead to a decrease in the combined company's overall market capitalization.

Should the market price of the combined company's common stock decline after the Reverse Stock Split, the percentage decline may be greater, due to the smaller number of shares outstanding, than it would have been prior to the Reverse Stock Split. A Reverse Stock Split is often viewed negatively by the market and, consequently, can lead to a decrease in the combined company's overall market capitalization. If the per share market price does not increase in proportion to the Reverse Stock Split ratio, then the value of the combined company, as measured by its stock capitalization, will be reduced. In some cases, the per-share stock price of companies that have effected reverse stock splits subsequently declined back to pre-reverse split levels, and accordingly, it cannot be assured that the total market value of the combined company's common stock will remain the same after the Reverse Stock Split is effected, or that the Reverse Stock Split will not have an adverse effect on the combined company's stock price due to the reduced number of shares outstanding after the Reverse Stock Split.

Risks Related to the Combined Company

Following completion of the Merger, the combined company will be susceptible to many of the risks described in the sections titled "*Risks Related to Homology's Business*" and "*Risks Related to Q32's Business*" in this proxy statement/prospectus. To the extent any of the events in the risks described in those sections occur, the potential benefits of the Merger may not be realized and the results of operations and financial condition of the combined company could be adversely affected in a material way. This could cause the market price of the combined company's common stock to decline.

The market price of the combined company's common stock is expected to be volatile, and the market price of the common stock may drop following the Merger.

The market price of the combined company's common stock following the Merger could be subject to significant fluctuations. Some of the factors that may cause the market price of the combined company's common stock to fluctuate include:

- results of clinical trials and preclinical studies of the combined company's product candidates, or those of the combined company's competitors or the combined company's existing or future collaborators;
- failure to meet or exceed financial and development projections the combined company may provide to the public;
- failure to meet or exceed the financial and development projections of the investment community;
- if the combined company does not achieve the perceived benefits of the Merger as rapidly or to the extent anticipated by financial or industry analysts;
- announcements of significant acquisitions, strategic collaborations, joint ventures or capital commitments by the combined company or its competitors;
- actions taken by regulatory agencies with respect to the combined company's product candidates, clinical studies, manufacturing process or sales and marketing terms;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and the combined company's ability to obtain patent protection for its technologies;
- additions or departures of key personnel;

- significant lawsuits, including patent or stockholder litigation;
- if securities or industry analysts do not publish research or reports about the combined company's business, or if they issue adverse or misleading opinions regarding its business and stock;
- changes in the market valuations of similar companies;
- general market or macroeconomic conditions or market conditions in the pharmaceutical and biotechnology sectors;
- sales of securities by the combined company or its securityholders in the future;
- if the combined company fails to raise an adequate amount of capital to fund its operations or continued development of its product candidates; trading volume of the combined company's common stock;
- announcements by competitors of new commercial products, clinical progress or lack thereof, significant contracts, commercial relationships or capital commitments;
- the introduction of technological innovations or new therapies that compete with the products and services of the combined company; and
- period-to-period fluctuations in the combined company's financial results.

Moreover, the stock markets in general have experienced substantial volatility that has often been unrelated to the operating performance of individual companies. These broad market fluctuations may also adversely affect the trading price of the combined company's common stock. In addition, a recession, depression or other sustained adverse market event could materially and adversely affect the combined company's business and the value of its common stock. In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against such companies. Furthermore, market volatility may lead to increased shareholder activism if the combined company experiences a market valuation that activists believe is not reflective of its intrinsic value. Activist campaigns that contest or conflict with the combined company's strategic direction or seek changes in the composition of its board of directors could have an adverse effect on its operating results, financial condition and cash flows.

The combined company may incur losses for the foreseeable future and might never achieve profitability.

The combined company may never become profitable, even if the combined company is able to complete clinical development for one or more product candidates and eventually commercialize such product candidates. The combined company will need to successfully complete significant research, development, testing and regulatory compliance activities that, together with projected general and administrative expenses, is expected to result in substantial increased operating losses for at least the next several years. Even if the combined company does achieve profitability, it may not be able to sustain or increase profitability on a quarterly or annual basis.

If the combined company fails to attract and retain management and other key personnel, it may be unable to continue to successfully develop or commercialize its product candidates or otherwise implement its business plan.

The combined company's ability to compete in the highly competitive pharmaceuticals industry depends on its ability to attract and retain highly qualified managerial, scientific, medical, legal, sales and marketing and other personnel. The combined company will be highly dependent on its management and scientific personnel. The loss of the services of any of these individuals could impede, delay, or prevent the successful development of the combined company's product pipeline, completion of its planned clinical trials, commercialization of its product candidates or in-licensing or acquisition of new assets and could impact negatively its ability to implement successfully its business plan. If the combined company loses the services of any of these individuals, it might not be able to find suitable replacements on a timely basis or at all, and its business could be harmed as a result. The combined company might not be able to attract or retain qualified management and other key personnel in the future due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses.

The combined company will need to raise additional financing in the future to fund its operations, which may not be available to it on favorable terms or at all.

The combined company will require substantial additional funds to conduct the costly and time-consuming clinical efficacy trials necessary to pursue regulatory approval of each potential product candidate. The combined company's future capital requirements will depend upon a number of factors, including: the number and timing of future product candidates in the pipeline; progress with and results from preclinical testing and clinical trials; the ability to manufacture sufficient drug supplies to complete preclinical and clinical trials; the costs involved in preparing, filing, acquiring, prosecuting, maintaining and enforcing patent and other intellectual property claims; and the time and costs involved in obtaining regulatory approvals and favorable reimbursement or formulary acceptance. Raising additional capital may be costly or difficult to obtain and could, for example, through the sale of common stock or securities convertible or exchangeable into common stock, significantly dilute its stockholders' ownership interests or inhibit the combined company's ability to achieve its business objectives. If the combined company raises additional funds through public or private equity offerings, the terms of these securities may include liquidation or other preferences that adversely affect the rights of its common stockholders. In addition, any debt financing may subject the combined company to fixed payment obligations and covenants limiting or restricting its ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If the combined company raises additional capital through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, the combined company may have to relinquish certain valuable intellectual property or other rights to its product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable to it. Even if the combined company were to obtain sufficient funding, there can be no assurance that it will be available on terms acceptable to the combined company or its stockholders.

The combined company will incur additional costs and increased demands upon management as a result of complying with the laws and regulations affecting public companies.

The combined company will incur significant legal, accounting and other expenses as a public company that Q32 did not incur as a private company, including costs associated with public company reporting obligations under the Exchange Act. The combined company's management team will consist of the executive officers of Q32 prior to the Merger, some of whom have not previously managed and operated a public company. These executive officers and other personnel will need to devote substantial time to gaining expertise related to public company reporting requirements and compliance with applicable laws and regulations to ensure that the combined company complies with all of these requirements. Any changes the combined company makes to comply with these obligations may not be sufficient to allow it to satisfy its obligations as a public company on a timely basis, or at all. These reporting requirements, rules and regulations, coupled with the increase in potential litigation exposure associated with being a public company, could also make it more difficult for the combined company to attract and retain qualified persons to serve on the board of directors or on board committees or to serve as executive officers, or to obtain certain types of insurance, including directors' and officers' insurance, on acceptable terms.

Upon completion of the Merger, failure by the combined company to comply with the initial listing standards of Nasdaq will prevent its stock from being listed on Nasdaq.

Upon completion of the Merger, Homology, under the new name "Q32 Bio Inc.," will be required to meet the initial listing requirements to maintain the listing and continued trading of its shares on Nasdaq. These initial listing requirements are more difficult to achieve than the continued listing requirements. Pursuant to the Merger Agreement, Homology agreed, to the extent required by the rules and regulations of Nasdaq, to use its commercially reasonable efforts to cause the shares of Homology common stock being issued in the Merger to be approved for listing on Nasdaq at or prior to the Effective Time. Based on information currently available to Homology, Homology anticipates that its stock will be unable to meet the $4.00 (or, to the extent applicable, $3.00) minimum bid price initial listing requirement at the closing of the Merger unless it effects a reverse stock

split. The board of directors of Homology intends to effect a reverse stock split of the shares of Homology common stock at a ratio of between 1:10 to 1:30. In addition, often times a reverse stock split will not result in a trading price for the affected common stock that is proportional to the ratio of the split. Following the Merger, if the combined company is unable to satisfy Nasdaq listing requirements, Nasdaq may notify the combined company that its shares of common stock will not be listed on Nasdaq.

Upon a potential delisting from Nasdaq, if the common stock of the combined company is not then eligible for quotation on another market or exchange, trading of the shares could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it is likely that there would be significantly less liquidity in the trading of the common stock of the combined company; decreases in institutional and other investor demand for the shares, coverage by securities analysts, market making activity and information available concerning trading prices and volume; and fewer broker dealers willing to execute trades in the common stock of the combined company. Also, it may be difficult for the combined company to raise additional capital if the combined company's common stock is not listed on a major exchange. The occurrence of any of these events could result in a further decline in the market price of the common stock of the combined company and could have a material adverse effect on the combined company.

Once the combined company is no longer an emerging growth company, a smaller reporting company or otherwise no longer qualifies for applicable exemptions, the combined company will be subject to additional laws and regulations affecting public companies that will increase the combined company's costs and the demands on management and could harm the combined company's operating results and cash flows.

The combined company will be subject to the reporting requirements of the Exchange Act, which requires, among other things, that the combined company file with the SEC, annual, quarterly and current reports with respect to the combined company's business and financial condition as well as other disclosure and corporate governance requirements. As an emerging growth company, Homology took advantage of exemptions from various requirements such as an exemption from the requirement to have the company's independent auditors attest to the company's internal control over financial reporting under Section 404 of the Sarbanes-Oxley Act of 2002 as well as an exemption from the "say on pay" voting requirements pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Homology ceased to qualify as an emerging growth company effective December 31, 2023. The combined company will qualify as a "smaller reporting company," as such term is defined in Rule 12b-2 under the Exchange Act, which allows the combined company to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in this proxy statement/prospectus and in the combined company's periodic reports and proxy statements. Once the combined company is no longer a smaller reporting company or otherwise no longer qualifies for these exemptions, the combined company will be required to comply with these additional legal and regulatory requirements applicable to public companies and will incur significant legal, accounting and other expenses to do so. If the combined company is not able to comply with the requirements in a timely manner or at all, the combined company's financial condition or the market price of the combined company's common stock may be harmed. For example, if the combined company or its independent auditor identifies deficiencies in the combined company's internal control over financial reporting that are deemed to be material weaknesses, the combined company could face additional costs to remedy those deficiencies, the market price of the combined company's stock could decline or the combined company could be subject to sanctions or investigations by the SEC or other regulatory authorities, which would require additional financial and management resources.

If the combined company fails to maintain proper and effective internal controls, its ability to produce accurate financial statements on a timely basis could be impaired.

Provided the combined company continues to be listed on Nasdaq, the combined company will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of Nasdaq.

The Sarbanes-Oxley Act requires, among other things, that the combined company maintain effective disclosure controls and procedures and internal control over financial reporting. The combined company must perform system and process evaluation and testing of its internal control over financial reporting to allow management to report on the effectiveness of its internal controls over financial reporting in its Annual Report on Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. As a private company, Q32 has never been required to test its internal controls within a specified period. This will require that the combined company incur substantial professional fees and internal costs to expand its accounting and finance functions and that it expends significant management efforts. The combined company may experience difficulty in meeting these reporting requirements in a timely manner.

The combined company may discover weaknesses in its system of internal financial and accounting controls and procedures that could result in a material misstatement of its financial statements. The combined company's internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If the combined company is not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act, or if it is unable to maintain proper and effective internal controls, the combined company may not be able to produce timely and accurate financial statements. If that were to happen, the market price of its common stock could decline and it could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities.

The unaudited pro forma condensed combined financial information for Homology and Q32 included in this proxy statement/prospectus are preliminary, and the combined company's actual financial position and operations after the Merger may differ materially from the unaudited pro forma financial information included in this proxy statement/prospectus.

The unaudited pro forma financial information for Homology and Q32 included in this proxy statement/prospectus are presented for illustrative purposes only and is not necessarily indicative of the combined company's actual financial condition or results of operations of future periods, or the financial condition or results of operations that would have been realized had the entities been combined during the period presented. The combined company's actual results and financial position after the Merger may differ materially and adversely from the unaudited pro forma financial information included in this proxy statement/prospectus. The exchange ratio formula reflected in this proxy statement/prospectus is preliminary. The final exchange ratio will be determined in accordance with the formula in the Merger Agreement and could differ materially from the preliminary exchange ratio used to prepare the pro forma adjustments. For more information see the section titled "*Unaudited Pro Forma Condensed Combined Financial Information*".

Q32 and its independent registered public accounting firm have identified a material weakness in its internal control over financial reporting. If Q32 is unable to remediate this material weakness, or if the combined company identifies additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, it may not be able to accurately or timely report its financial condition or results of operations, which may adversely affect its business and the market price of the combined company's common stock.

In preparation of its consolidated financial statements to meet the requirements applicable to this Merger, Q32 and its independent registered public accounting firm identified a material weakness in its internal control over financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

The material weakness identified related to deficiencies in Q32 controls over complex accounting topics. Specifically, Q32's accounting and internal control infrastructure did not allow for adequate review processes over complex accounting topics due to lack of sufficient personnel. Due to this material weakness, material errors were identified and corrected in Q32 unaudited condensed consolidated financial statements for the nine months ended September 30, 2023.

Q32 has plans to implement measures designed to improve internal controls over financial reporting to remediate the control deficiencies that led to the material weakness, including strengthening reviews by its finance team, expanding its accounting and finance team to add additional qualified accounting and finance resources, which may include augmenting its finance team with third party consultants that possess the required expertise to assist management with its review.

Q32 cannot assure you that the measures it has taken to date, and actions it may take in the future, will be sufficient to remediate the control deficiencies that led to the material weakness in its internal control over financial reporting or that they will prevent or avoid potential future material weaknesses. In addition, neither its management nor an independent registered public accounting firm has performed an evaluation of its internal control over financial reporting in accordance with the provisions of the Sarbanes-Oxley Act because no such evaluation has been required. Had Q32 or its independent registered public accounting firm performed an evaluation of its internal control over financial reporting in accordance with the provisions of the Sarbanes-Oxley Act, additional material weaknesses may have been identified. If Q32 is unable to successfully remediate its existing or any future material weaknesses in its internal control over financial reporting, or identify any additional material weaknesses in the future, or otherwise fail to maintain an effective system of internal controls, the accuracy and timing of its financial reporting may be adversely affected, it may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports in addition to applicable stock exchange listing requirements, investors may lose confidence in its financial reporting, and the market price of the combined company's common stock may decline as a result.

The combined company's certificate of incorporation and bylaws and provisions under Delaware law could make an acquisition of the combined company more difficult and may prevent attempts by its stockholders to replace or remove its management.

If the Merger is completed, Homology's amended and restated bylaws and Homology's restated certificate of incorporation, as amended by the amendments thereto attached to this proxy statement/prospectus as *Annex G* and, assuming Proposal Nos. 2 and 3 are approved by Homology stockholders at the Homology Special Meeting, will become the combined company's bylaws and certificate of incorporation. Provisions that will be included in the combined company's certificate of incorporation and bylaws may discourage, delay or prevent a merger, acquisition or other change in control of the combined company that stockholders may consider favorable, including transactions in which its common stockholders might otherwise receive a premium price for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of the combined company's common stock, thereby depressing the market price of its common stock. In addition, because the combined company's board of directors will be responsible for appointing the members of the combined company's management team, these provisions may frustrate or prevent any attempts by the combined company's stockholders to replace or remove its current management by making it more difficult for stockholders to replace members of the combined company's board of directors. Among other things, these provisions:

- establish a classified board of directors such that all members of the board are not elected at one time;
- do not provide for cumulative voting in the election of directors;
- allow the authorized number of its directors to be changed only by resolution of its board of directors;
- provide that only the board of directors may fill vacancies on the board of directors created by the expansion of the board of directors or the resignation, death or removal of a director;

- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on at stockholder meetings;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by its stockholders by written consent;
- limit who may call a special meeting of stockholders;
- authorize its board of directors to issue preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by its board of directors; and
- require the approval of the holders of at least 66.67% of the votes that all its stockholders would be entitled to cast to amend or repeal certain provisions of its charter or bylaws.

Moreover, because the combined company will be incorporated in Delaware, it is governed by the provisions of Section 203 of the DGCL, which prohibits stockholders owning in excess of 15% of the outstanding combined company voting stock from merging or combining with the combined company. Although Homology and Q32 believe these provisions collectively will provide for an opportunity to receive higher bids by requiring potential acquirors to negotiate with the combined company's board of directors, they would apply even if the offer may be considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by the combined company's stockholders to replace or remove then current management by making it more difficult for stockholders to replace members of the board of directors, which is responsible for appointing the members of management.

The certificate of incorporation of the combined company will provide that, unless the combined company consents in writing to the selection of an alternative forum, certain designated courts will be the sole and exclusive forum for certain legal actions between the combined company and its stockholders, which could limit its stockholders' ability to obtain a favorable judicial forum for disputes with the combined company or its directors, officers, employees or agents.

The certificate of incorporation of the combined company will provide that, unless it consents in writing to an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for state law claims for (i) any derivative action or proceeding brought on its behalf, (ii) any action asserting a claim of or based on a breach of a fiduciary duty owed by any of its current or former directors, officers, or other employees to the combined company or its stockholders, (iii) any action asserting a claim arising pursuant to any provision of the DGCL, its charter or its bylaws, or (iv) any action asserting a claim that is governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein, which for purposes of this risk factor refers to herein as the "Delaware Forum Provision." The Delaware Forum Provision will not apply to any causes of action arising under the Securities Act and the Exchange Act. The bylaws of the combined company will further provide that, unless it consents in writing to an alternative forum, federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, which for purposes of this risk factor is referred to herein as the "Federal Forum Provision." In addition, the certificate of incorporation and bylaws of the combined company will provide that any person or entity purchasing or otherwise acquiring any interest in shares of its capital stock is deemed to have notice of and consented to the foregoing Delaware Forum Provision and Federal Forum Provision; provided, however, that stockholders cannot and will not be deemed to have waived its compliance with the U.S. federal securities laws and the rules and regulations thereunder.

The Delaware Forum Provision and the Federal Forum Provision may impose additional litigation costs on stockholders of the combined company in pursuing any such claims, particularly if the stockholders do not reside

in or near the State of Delaware. Additionally, the forum selection clauses in the bylaws of the combined company may limit its stockholders' ability to bring a claim in a judicial forum that they find favorable for disputes with the combined company or its directors, officers or employees, which may discourage such lawsuits against the combined company and its directors, officers and employees even though an action, if successful, might benefit its stockholders.

Homology and Q32 do not anticipate that the combined company will pay any cash dividends in the foreseeable future.

The current expectation is that the combined company will retain its future earnings, if any, to fund the growth of the combined company's business as opposed to paying dividends. As a result, capital appreciation, if any, of the common stock of the combined company will be your sole source of gain, if any, for the foreseeable future.

An active trading market for the combined company's common stock may not develop and its stockholders may not be able to resell their shares of common stock for a profit, if at all.

Prior to the Merger, there had been no public market for shares of Q32 capital stock. An active trading market for the combined company's shares of common stock may never develop or be sustained. If an active market for the combined company's common stock does not develop or is not sustained, it may be difficult for its stockholders to sell their shares at an attractive price or at all.

Future sales of shares by existing stockholders could cause the combined company's stock price to decline.

If existing securityholders of Homology and Q32 sell, or indicate an intention to sell, substantial amounts of the combined company's common stock in the public market after legal restrictions on resale discussed in this proxy statement/prospectus lapse, the trading price of the common stock of the combined company could decline. Based on shares outstanding as of February 5, 2024 after giving effect to the Pre-Closing Financing and shares expected to be issued upon completion of the Merger, the combined company is expected to have outstanding a total of approximately 217.8 million shares of common stock (before giving effect to the proposed Reverse Stock Split) immediately following the completion of the Merger. Certain of these shares are subject to lock-up agreements between Homology and Q32 on the one hand and certain securityholders of Homology and Q32 on the other hand. Following the expiration of these lock-up agreements, the relevant stockholders will not be restricted from selling shares of the combined company's common stock held by them, other than by applicable securities laws. Stockholders not subject to these lock-up agreements will not be restricted from selling shares of the combined company's common stock held by them, other than by applicable securities laws. In addition, shares of common stock that are subject to outstanding options or warrants of Q32 will become eligible for sale in the public market to the extent permitted by the provisions of various vesting agreements and Rules 144 and 701 under the Securities Act. If these shares are sold, the trading price of the combined company's common stock could decline.

After completion of the Merger, the combined company's executive officers, directors and principal stockholders will have the ability to control or significantly influence all matters submitted to the combined company's stockholders for approval.

Upon the completion of the Merger, and giving effect to the issuance of the Pre-Closing Financing, it is anticipated that the combined company's executive officers, directors and principal stockholders will, in the aggregate, beneficially own approximately 39.28% of the combined company's outstanding shares of common stock, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing. As a result, if these stockholders were to choose to act together, they would be able to control or significantly

influence all matters submitted to the combined company's stockholders for approval, as well as the combined company's management and affairs. For example, these stockholders, if they choose to act together, would control or significantly influence the election of directors and approval of any merger, consolidation or sale of all or substantially all of the combined company's assets. This concentration of voting power could delay or prevent an acquisition of the combined company on terms that other stockholders may desire.

If equity research analysts do not publish research or reports, or publish unfavorable research or reports, about the combined company, its business or its market, its stock price and trading volume could decline.

The trading market for the combined company's common stock will be influenced by the research and reports that equity research analysts publish about it and its business. Equity research analysts may elect to not provide research coverage of the combined company's common stock after the completion of the Merger, and such lack of research coverage may adversely affect the market price of its common stock. In the event it does have equity research analyst coverage, the combined company will not have any control over the analysts or the content and opinions included in their reports. The price of the combined company's common stock could decline if one or more equity research analysts downgrade its stock or issue other unfavorable commentary or research. If one or more equity research analysts ceases coverage of the combined company or fails to publish reports on it regularly, demand for its common stock could decrease, which in turn could cause its stock price or trading volume to decline.

The combined company will have broad discretion in the use of the cash and cash equivalents of the combined company and the proceeds from the Pre-Closing Financing and may invest or spend the proceeds in ways with which you do not agree and in ways that may not increase the value of your investment.

The combined company will have broad discretion over the use of the cash and cash equivalents of the combined company and the proceeds from the Pre-Closing Financing. You may not agree with the combined company's decisions, and its use of the proceeds may not yield any return on your investment. The combined company's failure to apply these resources effectively could compromise its ability to pursue its growth strategy and the combined company might not be able to yield a significant return, if any, on its investment of these net proceeds. You will not have the opportunity to influence its decisions on how to use the combined company's cash resources.

Changes in tax laws or in their implementation or interpretation may adversely affect the combined company's business and financial condition.

The rules dealing with U.S. federal, state and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect the combined company's business and financial condition. In recent years, many such changes have been made and changes are likely to continue to occur in the future. The combined company cannot predict whether, when, in what form or with what effective dates, tax laws, regulations and rulings may be enacted, promulgated or decided or whether they could increase its tax liability or require changes in the manner in which it operates in order to minimize increases in its tax liability.

The combined company's ability to use net operating loss carryforwards and other tax attributes may be limited, including as a result of the Merger.

The combined company's ability to utilize net operating loss carryforwards, or NOLs, and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including, as discussed below, in connection with the Merger or other transactions. Similar rules may apply under state tax laws. If the combined company earns taxable income, such limitations could result in increased future income tax liability to the combined company, and the combined company's future cash flows could be adversely affected.

For a more complete discussion of the risks related to the net operating loss carryforwards and certain other tax attributes of Homology and Q32, please see the discussions under "*Risk Factors—Risks Related to Homology's Business—Risks Related to Homology's Common Stock—Homology's ability to use net operating losses and research and development credits to offset future taxable income or income tax liabilities may be subject to certain limitations*" and "*Risk Factors—Risks Related to Q32's Business—General Risk Factors—Q32's ability to utilize its net operating loss carryforwards and certain other tax attributes may be limited,*" respectively.

Unfavorable global economic conditions could adversely affect the combined company's business, financial condition, results of operations or cash flows.

The combined company's results of operations could be adversely affected by general conditions in the global economy and in the global financial markets. A severe or prolonged economic downturn could result in a variety of risks to the combined company's business, including, weakened demand for the combined company's product candidates and the combined company's ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain the combined company's suppliers, possibly resulting in supply disruption. Any of the foregoing could harm the combined company's business and the combined company cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact its business.

Homology and Q32 may mutually agree to waive the condition to the Merger requiring approval for listing on Nasdaq, and if such condition is waived, the combined company's stock may not be listed on Nasdaq following completion of the Merger.

Pursuant to the Merger Agreement, Homology agreed, to the extent required by the rules and regulations of Nasdaq, to use its commercially reasonable efforts to cause the shares of Homology common stock being issued in the Merger to be approved for listing on Nasdaq at or prior to the Effective Time. Additionally, under the Merger Agreement, each of Homology's and Q32's obligation to complete the Merger is subject to the satisfaction or waiver by each of the parties of various conditions, including that the shares of Homology common stock to be issued in the Merger have been approved for listing (subject to official notice of issuance) on Nasdaq as of the closing of the Merger. In the event that the shares of Homology common stock to be issued in the Merger are not approved for listing on Nasdaq, it is possible that Homology and Q32 may mutually agree to waive the applicable condition and nonetheless proceed with completing the Merger. If such condition is waived, Homology will not recirculate an updated proxy statement/prospectus, nor will it solicit a new vote of stockholders prior to proceeding with the Merger. If Homology proceeds with the Merger in these circumstances, the combined company's stock may not be listed on Nasdaq.

If the combined company's stock is not listed on Nasdaq following completion of the Merger, trading of the shares could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it is likely that there would be significantly less liquidity in the trading of the common stock of the combined company; decreases in institutional and other investor demand for the shares, coverage by securities analysts, market making activity and information available concerning trading prices and volume; and fewer broker dealers willing to execute trades in the common stock of the combined company. Also, it may be difficult for the combined company to raise additional capital if the combined company's common stock is not listed on a major exchange. The occurrence of any of these events could result in a further decline in the market price of the common stock of the combined company and could have a material adverse effect on the combined company.

Risks Related to Homology's Business

Risks Related to Homology's Financial Position and Need for Additional Capital

Homology has incurred significant losses since inception and anticipates that it will incur continued losses for the foreseeable future. If Homology is unable to achieve and sustain profitability, the market value of its common stock will likely decline. Homology may never achieve or maintain profitability.

Homology is a clinical-stage genetic medicines company with a limited operating history. Since inception, Homology has incurred significant operating losses. Homology's net loss for the nine months ended September 30, 2023 was $96.8 million. As of September 30, 2023, Homology had an accumulated deficit of approximately $526.0 million. On March 10, 2022, Homology closed its transaction with OXB (US) LLC and recorded a gain of $131.2 million on the sale of its manufacturing business which resulted in net income of $29.3 million for the nine months ended September 30, 2022 (see Note 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding the OXB (US) LLC Transaction). In addition, Homology has not commercialized any products and has never generated any revenue from product sales. Homology has historically devoted most of its financial resources to research and development, including its preclinical development activities.

In July 2023, Homology completed a review of its business and its board of directors approved a plan to explore, review and evaluate a range of potential strategic options available to Homology, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Based on the financing environment and its anticipated clinical development timeline, Homology stopped further development of its programs and reduced its workforce by 86% to significantly reduce its ongoing operating costs as Homology evaluates strategic alternatives.

Homology has incurred and expects to continue to incur costs and expenditures in connection with the process of evaluating its strategic alternatives and will continue to incur costs associated with operating as a public company. The process of continuing to evaluate strategic transactions may be costly, time-consuming and complex, and Homology may incur significant costs related to these processes, such as legal, accounting and advisory fees and expenses and other related charges. A considerable portion of these costs will be incurred regardless of whether any particular course of action is implemented or transaction is completed. Any such expenses will decrease the remaining cash available for use in Homology's business.

Should Homology resume development of its product candidates, Homology would expect to continue to incur significant additional operating losses for the foreseeable future as it seeks to advance product candidates through preclinical and clinical development, expand its research and development activities, develop new product candidates, complete clinical trials, seek regulatory approval and, if Homology receives U.S. Food and Drug Administration, or FDA, or foreign regulatory authorities approval, commercialize its products. Furthermore, the costs of advancing product candidates into each succeeding clinical phase tend to increase substantially over time. The total costs to advance any of Homology's product candidates to marketing approval in even a single jurisdiction would be substantial. Because of the numerous risks and uncertainties associated with genetic medicines product development, Homology is unable to accurately predict the timing or amount of increased expenses or when, or if, Homology will be able to begin generating revenue from the commercialization of products or achieve or maintain profitability. Homology's expenses will also increase substantially if Homology:

- continues its current research programs and its preclinical development of product candidates from its current research programs;
- seeks to identify, assess, acquire and/or develop additional research programs and additional product candidates;
- initiates preclinical testing and clinical trials for any product candidates it identifies and develops;

- establishes a sales, marketing and distribution infrastructure to commercialize any product candidates for which it may obtain marketing approval;
- maintains, expands and protects its intellectual property portfolio;
- further develops its genetic medicines platform;
- hires additional clinical, scientific and commercial personnel;
- adds operational, financial and management information systems and personnel, including personnel to support its product development and planned future commercialization efforts, as well as to support its operations as a public reporting company;
- acquires or in-licenses other commercial products, product candidates and technologies;
- makes royalty, milestone or other payments under current and any future in-license agreements; and
- further expands its Good Manufacturing Practices, or GMP, manufacturing capacity.

Furthermore, should Homology resume development of its product candidates, its ability to successfully develop, commercialize and license its products and generate product revenue would be subject to substantial additional risks and uncertainties. Each of its programs and product candidates will require additional preclinical and clinical development, potential regulatory approval in multiple jurisdictions, securing manufacturing supply, capacity and expertise, building of a commercial organization, substantial investment and significant marketing efforts before Homology generates any revenue from product sales. These risks are further described under "*—Risks Related to Discovery, Development, Clinical Testing, Manufacturing and Regulatory Approval*" and "*—Risks Related to Commercialization.*"

As a result, Homology expects to continue to incur net losses and negative cash flows for the foreseeable future. These net losses and negative cash flows have had, and will continue to have, an adverse effect on its stockholders' equity and working capital. The amount of Homology's future net losses will depend, in part, on the rate of future growth of its expenses and its ability to generate revenues. If Homology is unable to develop and commercialize one or more of its product candidates either alone or with collaborators, or if revenues from any product candidate that receives marketing approval are insufficient, Homology will not achieve profitability. Even if Homology does achieve profitability, it may not be able to sustain or increase profitability. If Homology is unable to achieve and then maintain profitability, the value of its equity securities will be materially and adversely affected.

Any financial or strategic option Homology pursues may not be successful.

In July 2023, Homology's board of directors approved a process to explore, review and evaluate a range of potential strategic options available to Homology, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. The process of continuing to evaluate these strategic options has been and may continue to be costly, time-consuming and complex and Homology may incur significant costs related to this continued evaluation, such as legal, accounting and advisory fees and expenses and other related charges. There can be no assurance that the proposed Merger with Q32 will be completed, and Homology can provide no assurance that any other strategic alternative it may pursue will have a positive impact on its results of operations or financial condition.

Raising additional capital may cause dilution to Homology's stockholders, restrict its operations or require it to relinquish rights to its technologies or product candidates.

Until such time, if ever, as Homology can generate substantial revenue, it may finance its cash needs through a combination of equity offerings, debt financings, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements. As of September 30, 2023, Homology does not have any committed external source of funds. In addition, Homology may seek additional capital due to favorable market conditions or strategic considerations, even if it believes that it has sufficient funds for its current or future operating plans.

To the extent that Homology raises additional capital through the sale of equity or convertible debt securities, including under its effective Registration Statement on Form S-3, the ownership interests of its stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of its common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting Homology's ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If Homology raises additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, it may be required to relinquish valuable rights to its technologies, future revenue streams or product candidates or grant licenses on terms that may not be favorable to it. If Homology is unable to raise additional funds through equity or debt financings when needed, it may be required to delay, limit, reduce or terminate its product development or future commercialization efforts, should it resume development of its product candidates, or grant rights to develop and market product candidates that it would otherwise prefer to develop and market itself.

Homology's decision to discontinue further program development efforts may not result in the anticipated savings for Homology and may adversely affect its business.

In connection with its decision to pursue strategic alternatives and reduce its ongoing operating expenses, in July 2023 Homology decided to stop further program developments. Based on the anticipated clinical development timeline of HMI-103 and the financing environment, Homology believes this decision to discontinue further program development efforts will significantly reduce its ongoing operating costs. Homology may not realize, in full or in part, the anticipated benefits and savings in operating expenses from this decision due to unforeseen difficulties, delays or other unexpected costs. For instance, this decision to stop further program developments may include higher than expected costs associated with winding down Homology's clinical programs. Moreover, if Homology is unable to realize the expected cost savings, its financial condition could be adversely affected, and it may be more difficult to complete the proposed Merger with Q32 or any other potential strategic transaction.

Homology will require additional capital to fund its operations, and if Homology fails to obtain necessary financing, it may not be able to continue its operations for more than twelve months after the date the unaudited consolidated financial statements included elsewhere in this proxy statement/prospectus have been issued.

Homology will require additional capital, which it may raise through equity offerings, debt financings, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements or other sources to enable it to complete the development and potential commercialization of its product candidates and any future product candidates should it resume such activities. In addition, Homology may not be able to enter into any collaborations that will generate significant cash. Adequate additional financing may not be available to Homology on acceptable terms, or at all. Homology's failure to raise capital as and when needed would have a negative effect on its financial condition and its ability to pursue its business strategy. In addition, attempting to secure additional financing may divert the time and attention of Homology's management from day-to-day activities.

Based upon its current projections, Homology believes that its existing cash, cash equivalents, and short-term investments will enable it to continue to fund its operations for at least one year from the date its unaudited consolidated financial statements for the period ended September 30, 2023 included elsewhere in this proxy statement/prospectus were issued. However, due to considerations of certain qualitative factors, including the discontinuation of all clinical trials and research activities, as well as Homology's significant reduction in force of all but a few custodial employees, Homology's management has concluded that there is substantial doubt regarding Homology's ability to continue as a going concern for more than twelve months after the date the unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus have been issued. Beyond that, Homology will need to raise additional capital in order to fund operating

expenses and capital expenditure requirements. This estimate is based on assumptions that may prove to be wrong, and Homology could use its available capital resources sooner than it currently expects. In addition, its resource requirements could materially change depending on the outcome of its ongoing strategic alternative review process. As a result, Homology is unable to estimate the exact amount of its working capital requirements. Changing circumstances could cause Homology to consume capital significantly faster than it currently anticipates, and it may need to spend more than currently expected because of circumstances beyond its control. Should Homology resume development of its product candidates, its future funding requirements, both near and long-term, would depend on many factors, including, but not limited to:

- the initiation, progress, timing, costs and results of Homology's planned clinical trials for its product candidates;
- the outcome, timing and cost of meeting regulatory requirements established by the FDA and other comparable foreign regulatory authorities;
- the cost of filing, prosecuting, defending and enforcing Homology's patent claims and other intellectual property rights;
- the cost of defending potential intellectual property disputes, including patent infringement actions brought by third parties against Homology or its product candidates;
- the effect of competing technological and market developments;
- the cost and timing of completion of commercial-scale manufacturing activities;
- the costs of operating as a public company;
- the extent to which Homology in-licenses or acquires other products and technologies;
- the cost of establishing sales, marketing and distribution capabilities for Homology's product candidates in regions where it chooses to commercialize its products; and
- the initiation, progress, timing and results of Homology's commercialization of its product candidates, if approved for commercial sale.

Homology maintains the majority of its cash and cash equivalents in accounts with major U.S. and multi-national financial institutions, and Homology's deposits at these institutions exceed insured limits. Market conditions can impact the viability of these institutions. In the event of failure of any of the financial institutions where Homology maintains its cash and cash equivalents, there can be no assurance that Homology would be able to access uninsured funds in a timely manner or at all. Any inability to access or delay in accessing these funds could adversely affect its business and financial position.

Homology cannot be certain that additional funding will be available on acceptable terms, or at all. For example, the trading prices for Homology's and other biopharmaceutical companies' stock have been highly volatile as a result of macroeconomic conditions, developments in the industry and COVID-19. As a result, Homology may face difficulties raising capital through sales of its common stock and any such sales may be on unfavorable terms. If Homology is unable to raise additional capital in sufficient amounts or on terms acceptable to it, it may have to significantly delay, scale back or discontinue the development or commercialization of or product candidates or potentially discontinue operations.

Homology has a limited operating history and no history of commercializing genetic medicine products, which may make it difficult to evaluate the prospects for its future viability.

Homology was established and began operations in 2015. Homology's operations to date have been limited to financing and staffing its company, developing its technology and identifying and developing its product candidates. Homology has not yet demonstrated an ability to successfully complete any clinical trials, including large-scale, pivotal clinical trials, obtain marketing approval, manufacture a commercial scale product, or arrange

for a third party to do so on its behalf, or conduct sales and marketing activities necessary for successful product commercialization. Typically, it takes about six to ten years to develop a new drug from the time it enters Phase 1 clinical trials to when it is approved for treating patients, but in many cases, it may take longer. Consequently, should Homology resume development of its product candidates, predictions about its future success or viability may not be as accurate as they could be if it had a longer operating history or a history of successfully developing and commercializing genetic medicine products.

In addition, as a business with a limited operating history, Homology may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. Homology will eventually need to transition from a company with a research focus to a company capable of supporting commercial activities. Homology may not be successful in such a transition.

Homology expects its financial condition and operating results may fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond its control. Accordingly, you should not rely upon the results of any particular quarterly or annual period as indications of future operating performance.

Should Homology resume development of its product candidates, Homology would be heavily dependent on the success of its product candidates, and if none of its candidates receives regulatory approval or is not successfully commercialized, its business may be harmed.

Homology has historically invested a significant portion of its efforts and financial resources in the development of its product candidates. Homology's future success and ability to generate product revenue is substantially dependent on its ability to successfully develop, obtain regulatory approval for and successfully commercialize its product candidates. Homology currently has no products that are approved for commercial sale and may never be able to develop marketable products, and it has stopped development activities. Should Homology resume development of its product candidates, Homology expects that a substantial portion of its efforts and expenditures over the next few years would be devoted to development of these candidates, which would require additional clinical development, management of clinical and manufacturing activities, regulatory approval in multiple jurisdictions, securing manufacturing supply, building of a commercial organization, substantial investment and significant marketing efforts before Homology can generate any revenues from any commercial sales. Accordingly, Homology's business has historically depended heavily on the successful development, regulatory approval and commercialization of its product candidates, which may never occur. Therefore, Homology cannot be certain that any of its product candidates would be successful in future clinical trials, receive regulatory approval or be successfully commercialized even if Homology receives regulatory approval.

Even if Homology receives approval to market any product candidate from the FDA or other regulatory authorities, Homology cannot be certain that its product candidates will be successfully commercialized, widely accepted in the marketplace or more effective than other commercially available alternatives. Additionally, the research, testing, manufacturing, labeling, approval, sale, marketing and distribution of genetic medicine products are and will remain subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries that each have differing regulations. Homology is not permitted to market any product candidate in the United States until it receives approval of a Biologics License Application, or BLA from the FDA, or in any foreign countries until it receives the requisite approval from such countries.

Homology has not submitted a BLA to the FDA or comparable applications to other regulatory authorities and does not expect to be in a position to do so for the foreseeable future.

If any of Homology's product candidates shows unexpected adverse events or a lack of efficacy in the indications it intends to treat, or if it experiences other regulatory or developmental issues, its development plans and business could be significantly harmed. Further, competitors may be developing products with similar technology and may experience problems with their products that could identify problems that would potentially harm Homology's business.

Homology may not be successful in its efforts to identify additional product candidates.

Historically, part of Homology's strategy has involved, and to the extent such activities are resumed in the future may involve, identifying novel product candidates. The process by which Homology identifies product candidates may fail to yield product candidates for clinical development for a number of reasons, including those discussed in these risk factors and also:

- Homology may not be able to assemble sufficient resources to acquire or discover additional product candidates;
- competitors may develop alternatives that render Homology's potential product candidates obsolete or less attractive;
- potential product candidates Homology develops may nevertheless be covered by third parties' patents or other exclusive rights;
- potential product candidates may, on further study, be shown to have harmful side effects, toxicities or other characteristics that indicate that they are unlikely to be products that will receive marketing approval and achieve market acceptance;
- potential product candidates may not be effective in treating their targeted diseases;
- the market for a potential product candidate may change so that the continued development of that product candidate is no longer reasonable;
- a potential product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all; or
- the regulatory pathway for a potential product candidate may be complex and difficult to navigate successfully or economically.

In addition, should Homology resume development of its product candidates, Homology may choose to focus its efforts and resources on a potential product candidate that ultimately proves to be unsuccessful. As a result, Homology may fail to capitalize on viable commercial products or profitable market opportunities, be required to forego or delay pursuit of opportunities with other product candidates or other diseases that may later prove to have greater commercial potential, or relinquish valuable rights to such product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been advantageous for Homology to retain sole development and commercialization rights. If Homology is unable to identify additional suitable product candidates for clinical development, this would adversely impact its business strategy and its financial position and share price and could potentially cause it to cease operations.

Homology may be required to make significant payments in connection with its license agreement with the City of Hope.

Under its license agreement with the City of Hope, Homology is subject to significant obligations, including payment obligations upon achievement of specified milestones and royalties on product sales, as well as other material obligations, including potential payments if Homology were to sublicense the COH technology to additional strategic collaborators. If these payments become due, Homology may not have sufficient funds available to meet its obligations or it may have to direct funds from other development efforts, and as a result, its development efforts may be materially harmed.

Risks Related to Discovery, Development, Clinical Testing, Manufacturing and Regulatory Approval

Should Homology resume development its of product candidates, Homology intends to identify and develop product candidates based on its novel genetic medicines platform, which makes it difficult to predict the time and cost of product candidate development. No products that utilize gene editing technology have been approved in the United States, and there have only been a limited number of human clinical trials involving a gene editing product candidate. Moreover, none of those trials has involved Homology's nuclease-free gene editing technology, prior to its initiated Phase 1 pheEDIT clinical trial. In addition, there have been a limited number of gene therapy products approved in the United States or in Europe and none of these products have utilized Homology's AAVHSC platform.

Homology has historically concentrated its research and development efforts on its genetic medicines platform, which uses both nuclease-free gene editing and gene therapy technologies. Homology's future success depends on the successful development of this novel therapeutic approach. To date, no product that utilizes gene editing has been approved in the United States. There have been a limited number of clinical trials of gene editing technologies, however no product candidates have been approved, and, prior to Homology's initiated Phase 1 pheEDIT clinical trial, none of these clinical trials involved product candidates that utilize Homology's novel gene correction editing technology. Moreover, there have been a limited number of gene therapy products approved in the United States or in Europe and none of these products have utilized Homology's AAVHSC platform. In addition, because its programs, prior to Homology's pausing of further product development, were all in the research, preclinical or early-clinical stage, Homology has not been able to fully assess safety in humans, and there may be long-term effects from treatment with any of its future product candidates that it cannot predict at this time. Any gene correction editing product candidates Homology may develop will act at the level of DNA, and, because animal DNA differs from human DNA, it will be difficult for Homology to test its future product candidates in animal models for either safety or efficacy. Also, animal models may not exist for some of the diseases Homology expects to pursue, should Homology resume development of its product candidates. Homology's genetic medicines platform is based on a family of 15 proprietary AAVHSCs which Homology can deploy through a nuclease-free gene editing modality, gene therapy, or GTx-mAb, which is designed to produce antibodies throughout the body. All applications rely on the unique ability of Homology's AAVHSCs to efficiently target multiple tissues in the body. The mechanism of action by which these vectors target particular tissues is still not completely understood. Therefore, it is difficult for Homology to determine that its vectors will be able to properly integrate corrective DNA in or deliver gene transfer constructs to enough tissue cells to reach therapeutic levels. Should Homology resume development its of product candidates, Homology cannot be certain that its AAVHSCs will be able to meet safety and efficacy levels needed to be therapeutic in humans or that they will not cause significant adverse events or toxicities. Furthermore, studies conducted by a third party in non-human primates, or NHPs, suggest that intravenous delivery of certain AAV vectors at very high doses may result in severe toxicity of the dorsal root ganglion, or DRG. To date, Homology has not observed the severe DRG toxicities described in these publications after intravenous administration in NHPs with its naturally occurring AAVHSC vectors, and Homology has not seen these toxicities in its product candidates. However, Homology cannot be certain that it will be able to avoid triggering toxicities in any future preclinical or clinical studies it may conduct with its product candidates. Any such results could impact Homology's ability to develop a product candidate. As a result of these factors, it is more difficult for Homology to predict the time and cost of product candidate development, and Homology cannot predict whether the application of its genetic medicines platform, or any similar or competitive gene therapy or gene editing platforms, will result in the identification, development, and regulatory approval of any medicines, or that other genetic medicine technologies will not be considered better or more attractive for the development of medicines. There can be no assurance that any development problems Homology experiences in the future related to its genetic medicines platform or any of its research programs will not cause significant delays or unanticipated costs, or that such development problems can be solved. Homology may also experience delays in developing a sustainable, reproducible, and scalable manufacturing process or transferring that process to commercial partners. Any of these factors may prevent Homology from completing its preclinical studies or any clinical trials that Homology may initiate, should Homology resume development of its product candidates, or commercializing any product candidates Homology may develop on a timely or profitable basis, if at all.

Because gene therapy and gene editing are novel and the regulatory landscape that governs any product candidates Homology may develop is uncertain and continues to change, Homology cannot predict the time and cost of obtaining regulatory approval, if it receives it at all, for any product candidates it may develop to the extent it resumes such activities.

Regulatory requirements governing products created with genome editing technology or involving gene therapy treatment have changed frequently and will likely continue to change in the future. Approvals by one regulatory authority may not be indicative of what any other regulatory authority may require for approval, and there is substantial, and sometimes uncoordinated, overlap in those responsible for regulation of gene therapy products, cell therapy products and other products created with genome editing technology. For example, the FDA maintains the Office of Therapeutic Products within its Center for Biologics Evaluation and Research, or CBER, with responsibility for the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Should Homology resume development of its product candidates, these and other regulatory review agencies, committees and advisory groups and any requirements and guidelines they promulgate may lengthen the regulatory review process, require Homology to perform additional preclinical studies or clinical trials, increase its development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of these treatment candidates or lead to significant post-approval limitations or restrictions.

Additionally, under NIH Guidelines supervision of human gene transfer trials includes evaluation and assessment by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

In the European Union, or EU, the European Medicines Agency, or EMA, has a Committee for Advanced Therapies, or CAT, that, in conjunction with the Committee for Medicinal Products for Human Use, or CHMP, is responsible for assessing the quality, safety and efficacy of advanced therapy medicinal products, or ATMPs. ATMPs include gene therapy medicines, somatic-cell therapy medicines and tissue-engineered medicines. The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a gene therapy medicinal candidate that is submitted to the EMA. The CAT's opinion is considered by the CHMP when giving its final recommendation regarding the authorization of a product in view of the balance of benefits and risks identified. Although the CAT's draft opinion is submitted to the CHMP for final approval, the CHMP may depart from the draft opinion, if it provides detailed scientific justification. In the EU, the development and evaluation of a gene therapy medicinal product must be considered in the context of the relevant EU guidelines. The CHMP and CAT are also responsible for providing guidelines on ATMPs and have published numerous guidelines, including specific guidelines on gene therapies and cell therapies. These guidelines provide additional guidance on the factors that the EMA will consider in relation to the development and evaluation of ATMPs and include, among other things, the preclinical studies required to characterize ATMPs; the manufacturing and control information that should be submitted in a marketing authorization application; and post-approval measures required to monitor patients and evaluate the long-term efficacy and potential adverse reactions of ATMPs. Although these guidelines are not legally binding, Homology believes that its compliance with them is likely necessary to gain and maintain approval for any of its product candidates. In addition, the EMA may issue new guidelines concerning the development and marketing authorization for gene therapy medicinal products and require that Homology complies with these new guidelines. Similarly complex regulatory environments exist in other jurisdictions in which Homology might consider seeking regulatory approvals for its product candidates, further complicating the regulatory landscape. As a result, the procedures and standards applied to gene therapy products and cell therapy products may be applied to any of Homology's gene therapy or genome editing product candidates, but that remains uncertain at this point.

The clinical trial requirements of the FDA, the EMA and other regulatory authorities and the criteria these regulators use to evaluate the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for product candidates created with novel genome editing technology such as Homology's can be more lengthy, rigorous and expensive than the process for other better known or more extensively studied product candidates and technologies. To the extent Homology resumes its activities developing novel treatments for diseases in which there is little clinical experience with new endpoints and methodologies, there is heightened risk that the FDA, the EMA or comparable regulatory authorities may not consider the clinical trial endpoints to provide clinically meaningful results, and the resulting clinical data and results may be more difficult to analyze. This may be a particularly significant risk for many of the genetically defined diseases for which Homology may develop product candidates alone or with collaborators due to small patient populations for those diseases, and designing and executing a rigorous clinical trial with appropriate statistical power is more difficult than with diseases that have larger patient populations. Regulatory authorities administering existing or future regulations or legislation may not allow production and marketing of products utilizing genome editing technology in a timely manner or under technically or commercially feasible conditions. Even if Homology's product candidates obtain required regulatory approvals, such approvals may later be withdrawn as a result of changes in statute or regulations or the interpretation of new available data by applicable regulatory agencies.

Changes in applicable regulatory guidelines may lengthen the regulatory review process for Homology's product candidates, require additional studies or trials, increase development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of such product candidates, or lead to significant post-approval limitations or restrictions. Additionally, adverse developments in clinical trials conducted by others of gene therapy products or products created using genome editing technology, or adverse public perception of the field of genome editing, may cause the FDA and other regulatory authorities to revise the requirements for approval of any product candidates Homology may develop or limit the use of products utilizing genome editing technologies, either of which could materially harm its business. Furthermore, regulatory action or private litigation could result in expenses, delays or other impediments to Homology's research programs or the development or commercialization of current or future product candidates.

Should Homology resume development of its product candidates, Homology would be required to consult with these regulatory and advisory groups and comply with all applicable guidelines, rules and regulations. If Homology fails to do so, it may be required to delay or terminate development of such product candidates. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a product candidate to market could decrease Homology's ability to generate sufficient product revenue to maintain its business.

Clinical trials are expensive, time-consuming, difficult to design and implement, and involve an uncertain outcome.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. Should Homology resume development of its product candidates, the results of preclinical studies and early clinical trials of its product candidates may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. A number of companies in the biotechnology and genetic medicines industries have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Even if its current and future clinical trials are completed as planned, Homology cannot be certain that their results will establish the safety, purity, potency and/or effectiveness of any of its product candidates to the satisfaction of the FDA or other regulatory authorities, even if Homology believes that such trials were successful.

To date, Homology has not completed any clinical trials for its product candidates. Should Homology resume development of its product candidates, Homology may experience delays in conducting any clinical trials and Homology does not know whether planned clinical trials will begin on time, need to be redesigned, recruit and enroll patients on time or be completed on schedule, or at all. Clinical trials can be delayed or terminated for a variety of reasons, including delays or failures related to:

- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of Homology's clinical studies;
- obtaining regulatory approval to commence a trial;
- reaching an agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- obtaining institutional review board, or IRB, and ethics committee approval or positive opinion at each site;
- recruiting suitable patients to participate in a trial;
- developing and validating the companion diagnostic to be used in a clinical trial, if applicable;
- having patients complete a trial or return for post-treatment follow-up;
- clinical sites deviating from trial protocol or dropping out of a trial;
- addressing patient safety concerns that arise during the course of a trial;
- adding a sufficient number of clinical trial sites; or
- manufacturing sufficient quantities of product candidate for use in clinical trials.

Should Homology resume development of its product candidates, it may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent its ability to receive marketing approval or commercialize its product candidates or significantly increase the cost of such trials, including:

- Homology may receive feedback from regulatory authorities that requires it to modify the design of its clinical trials;
- clinical trials of Homology's product candidates may produce negative safety and/or efficacy data or inconclusive results, and it may decide, or regulators may require it, to conduct additional clinical trials or abandon development programs;
- the number of patients required for clinical trials of Homology's product candidates may be larger than Homology anticipates, enrollment in these clinical trials may be slower than it anticipates or participants may drop out of these clinical trials at a higher rate than it anticipates;
- Homology's third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to Homology in a timely manner, or at all;
- Homology or its investigators might have to suspend or terminate clinical trials of Homology's product candidates for various reasons, including non-compliance with regulatory requirements, a finding that Homology's product candidates have undesirable side effects or other unexpected characteristics, or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of Homology's product candidates may be greater than Homology anticipates and it may not have funds to cover the costs;
- the supply or quality of Homology's product candidates or other materials necessary to conduct clinical trials of its product candidates may be insufficient or inadequate;

- regulators may revise the requirements for approving Homology's product candidates, or such requirements may not be as Homology anticipates; and
- any future collaborators that conduct clinical trials may face any of the above issues, and may conduct clinical trials in ways they view as advantageous to them but that are suboptimal for Homology.

If Homology is required to conduct additional clinical trials or other testing of its product candidates beyond those that it contemplates, if it is unable to successfully complete clinical trials of its product candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, Homology may:

- incur unplanned costs;
- be delayed in obtaining marketing approval for Homology's product candidates or not obtain marketing approval at all;
- obtain marketing approval in some countries and not in others;
- obtain marketing approval for indications or patient populations that are not as broad as intended or desired;
- obtain marketing approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to additional post-marketing testing requirements; or
- have the product removed from the market after obtaining marketing approval.

Homology could encounter further delays if a clinical trial is suspended or terminated by it, by the IRBs of the institutions in which such trials are being conducted, by the Data Monitoring Committee, or DMC, for such trial or by the FDA or other regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or Homology's clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Furthermore, Homology may rely on CROs and clinical trial sites to ensure the proper and timely conduct of clinical trials and while Homology would have agreements governing their committed activities, Homology would have limited influence over their actual performance, as described in "—Risks Related to Homology's Dependence on Third Parties."

To the extent Homology were to resume such activities, all of its product candidates would require extensive clinical testing before it is prepared to submit a BLA or similar applications seeking regulatory approval. Homology cannot predict with any certainty if or when it might complete the development of any of its product candidate and submit a BLA or similar applications or whether any such BLA or similar applications will be approved by the FDA or comparable foreign authorities. Homology may seek feedback from the FDA or other regulatory authorities on its clinical development program, and the FDA or such regulatory authorities may not provide such feedback on a timely basis, or such feedback may not be favorable, which could further delay its development programs.

If Homology experiences delays in the commencement or completion of its clinical trials, or if Homology terminates a clinical trial prior to completion, the commercial prospects of its product candidates could be harmed, and its ability to generate revenues from its product candidates may be delayed. In addition, any delays in Homology's clinical trials could increase its costs, slow down the development and approval process and jeopardize its ability to commence product sales and generate revenues. Any of these occurrences may harm Homology's business, financial condition and results of operations. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of its product candidates.

In addition, the FDA's and other regulatory authorities' policies with respect to clinical trials may change and additional government regulations may be enacted. For instance, the regulatory landscape related to clinical trials in the EU recently evolved. The EU Clinical Trials Regulation, or CTR, which was adopted in April 2014 and repeals the EU Clinical Trials Directive, became applicable on January 31, 2022. While the Clinical Trials Directive required a separate clinical trial application, or CTA, to be submitted in each member state in which the clinical trial takes place, to both the competent national health authority and an independent ethics committee, the CTR introduces a centralized process and only requires the submission of a single application for multi-center trials. The CTR allows sponsors to make a single submission to both the competent authority and an ethics committee in each member state, leading to a single decision per member state. The assessment procedure of the CTA has been harmonized as well, including a joint assessment by all member states concerned, and a separate assessment by each member state with respect to specific requirements related to its own territory, including ethics rules. Each member state's decision is communicated to the sponsor via the centralized EU portal. Once the CTA is approved, clinical study development may proceed. The CTR provides for a three-year transition period. Clinical trials for which an application was submitted (i) prior to January 31, 2022 under the Clinical Trials Directive, or (ii) between January 31, 2022 and January 31, 2023 and for which the sponsor has opted for the application of the EU Clinical Trials Directive remain governed by said Clinical Trial Directive until January 31, 2025. After this date, all clinical trials (including those which are ongoing) will become subject to the provisions of the CTR. Compliance with the CTR requirements by Homology and its third-party service providers, such as clinical research organizations, or CROs, may impact its developments plans.

It is currently unclear to what extent the United Kingdom, or UK, will seek to align its regulations with the EU. The UK regulatory framework in relation to clinical trials is derived from existing EU legislation (as implemented into UK law, through secondary legislation). On January 17, 2022, the UK Medicines and Healthcare Regulatory Agency, or MHRA, launched an eight-week consultation on reframing the UK legislation for clinical trials, with the aim to streamline clinical trials approvals, enable innovation, enhance clinical trials transparency, enable greater risk proportionality, and promote patient and public involvement in clinical trials. The UK Government published its response to the consultation on March 21, 2023 confirming that it would bring forward changes to the legislation. These resulting legislative amendments will be closely watched and will determine how closely the UK regulations are aligned with the CTR. Under the terms of the Protocol on Ireland/Northern Ireland, provisions of the CTR which relate to the manufacture and import of investigational medicinal products and auxiliary medicinal products apply in Northern Ireland. On February 27, 2023, the UK Government and the European Commission reached a political agreement on the "Windsor Framework" which will revise the Protocol on Ireland/Northern Ireland in order to address some of the perceived shortcomings in its operation. Once implemented, this may have further impact on the application of the CTR in Northern Ireland. A decision by the UK Government not to closely align any new legislation with the new approach adopted in the EU may have an effect on the cost of conducting clinical trials in the UK as opposed to other countries.

If Homology is slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies governing clinical trials, its development plans may also be adversely impacted.

Adverse public perception of genetic medicine, and gene editing in particular, may negatively impact the length of time required to advance Homology's product candidates through clinical trials should Homology resume development of its product candidates, including the pace at which Homology advances patient enrollment, and potential regulatory approval of, or demand for, its potential products.

Some of Homology's therapeutic candidates involved editing the human genome. If Homology resumes the development of its product candidates in the future, the clinical and commercial success of Homology's potential products, should Homology resume development of such potential products, will depend in part on public acceptance of the use of gene editing and gene therapy for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that gene therapy and gene editing are unsafe, unethical, or immoral, and, consequently, Homology's products may not gain the acceptance of the public or the medical community. Adverse public attitudes may adversely impact Homology's ability to enroll clinical trials. Moreover, Homology's success will depend upon physicians prescribing, and their patients being willing to receive, treatments that involve the use of product candidates Homology may develop in lieu of, or in addition to, existing treatments with which they are already familiar and for which greater clinical data may be available.

In addition, gene editing technology is subject to public debate and heightened regulatory scrutiny due to ethical concerns relating to the application of gene editing technology to human embryos or the human germline. For example, in April 2015, Chinese scientists reported on their attempts to edit the genome of human embryos to modify the gene for hemoglobin beta. This is the gene in which a mutation occurs in patients with the inherited blood disorder beta thalassemia. Although this research was purposefully conducted in embryos that were not viable, the work prompted calls for a moratorium or other types of restrictions on gene editing of human eggs, sperm, and embryos. The Alliance for Regenerative Medicine in Washington, D.C. has called for a voluntary moratorium on the use of gene editing technologies in research that involved altering human embryos or human germline cells. Similarly, the NIH has announced that it would not fund any use of gene editing technologies in human embryos, noting that there are multiple existing legislative and regulatory prohibitions against such work, including the Dickey-Wicker Amendment, which prohibits the use of appropriated funds for the creation of human embryos for research purposes or for research in which human embryos are destroyed. Laws in the UK prohibit genetically modified embryos from being implanted into women, but embryos can be altered in research labs under license from the Human Fertilisation and Embryology Authority. Research on embryos is more tightly controlled in many other European countries.

Although Homology does not use its technologies to edit human embryos or the human germline, should it resume development of its product candidates, such public debate about the use of gene editing technologies in human embryos and heightened regulatory scrutiny could prevent or delay its development of product candidates. More restrictive government regulations or negative public opinion would have a negative effect on Homology's business or financial condition and may delay or impair its development and commercialization of product candidates or demand for any products Homology may develop. Adverse events in Homology's preclinical studies or clinical trials or those of its competitors or of academic researchers utilizing gene therapy or gene editing technologies, even if not ultimately attributable to product candidates Homology may discover and develop, and the resulting publicity could result in increased governmental regulation, unfavorable public perception, potential regulatory delays in the testing or approval of potential product candidates Homology may identify and develop, stricter labeling requirements for those product candidates that are approved, a decrease in demand for any such product candidates and a suspension or withdrawal of approval by regulatory authorities of Homology's product candidates.

A Breakthrough Therapy Designation from the FDA, even if granted for any of Homology's product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that Homology's product candidates will receive marketing approval.

Should Homology resume development of its product candidates, Homology may seek a Breakthrough Therapy Designation for its product candidates if the clinical data support such a designation for one or more product candidates to the extent it resumes development of its product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, or biologic in Homology's case, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Biologics designated as breakthrough therapies by the FDA may also be eligible for priority review and rolling review of a BLA, if the relevant criteria are met.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if Homology believes one of its product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy Designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under non-expedited FDA review procedures and does not assure ultimate

approval by the FDA. In addition, even if one or more of Homology's product candidates qualify as breakthrough therapies, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

A Fast Track Designation from the FDA, even if granted for any of Homology's product candidates, may not lead to a faster development or regulatory review or approval process, and does not increase the likelihood that Homology's product candidates will receive marketing approval.

On May 1, 2019, Homology received Fast Track Designation for HMI-102 for the prevention or treatment of neurocognitive defects due to phenylalanine hydroxylase deficiency through normalization of circulating phenylalanine levels, and on October 25, 2021, Homology received Fast Track Designation for HMI-103 for the treatment of neurocognitive and neuropsychiatric manifestations of PKU secondary to phenylalanine hydroxylase deficiency. Should Homology resume development of its product candidates, Homology may seek such designation for some or all of its other product candidates. If a drug or biologic, in Homology's case, is intended for the treatment of a serious or life-threatening condition and the biologic demonstrates the potential to address unmet medical needs for this condition, the biologic sponsor may also apply for FDA Fast Track Designation. The sponsor of a Fast Track product candidate has opportunities for more frequent interactions with the applicable FDA review team during product development and, once a BLA is submitted, the product candidate may be eligible for priority review. A Fast Track product candidate may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA. The FDA has broad discretion whether or not to grant this designation. Even if Homology believes a particular product candidate is eligible for this designation, it cannot assure you that the FDA would decide to grant it. Even if Homology does receive Fast Track Designation, it may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may withdraw Fast Track Designation if it believes that the designation is no longer supported by data from Homology's clinical development program. Many biologics that have received Fast Track Designation have failed to obtain approval.

In the future Homology may seek EMA PRIME designation or apply for other expedited regulatory pathways, designations, schemes or tools in the EU or UK for one or more of its product candidates, which Homology may not receive. Such designations may not lead to a faster development or regulatory review or approval process and do not increase the likelihood that its product candidates will receive marketing authorization.

In the future Homology may seek EMA PRIME (Priority Medicines) designation or other designations, schemes or tools for one or more of its product candidates. In the EU, innovative products that target an unmet medical need and are expected to be of major public health interest may be eligible for a number of expedited development and review programs, such as the PRIME scheme, which provides incentives similar to the Breakthrough Therapy and Fast-Track designation in the United States. PRIME is a voluntary scheme aimed at enhancing the EMA's support for the development of medicines that target unmet medical needs. It is based on increased interaction and early dialogue with companies developing promising medicines, to optimize their product development plans and speed up their evaluation to help them reach patients earlier. The benefits of a PRIME designation include the appointment of a rapporteur before submission of a marketing authorization application, early dialogue and scientific advice at key development milestones, and the potential to qualify products for accelerated review earlier in the application process.

Even if Homology believes one of its product candidates is eligible for PRIME, the EMA may disagree and instead determine not to make such designation. The EMA PRIME scheme or other schemes, designations, or tools, even if obtained or used for any of Homology's product candidates may not lead to a faster development, regulatory review or approval process compared to therapies considered for approval under conventional procedures and do not assure ultimate approval. In addition, even if one or more of Homology's product

candidates is eligible to the PRIME scheme, the EMA may later decide that such product candidates no longer meet the conditions for qualification or decide that the time period for review or approval will not be shortened. Product developers that benefit from PRIME designation may be eligible for accelerated assessment (in 150 days instead of 210 days), which may be granted for medicinal products of major interest from a public health perspective or that target an unmet medical need, but this is not guaranteed.

Homology may equally pursue some of the post-Brexit MHRA procedures to prioritize access to new medicines that will benefit patients, such as a 150-day assessment, a rolling review procedure and an innovative licensing and access pathway, or ILAP. ILAP aims to accelerate the time to market and to facilitate patient access to medicines, including new chemical entities, biological medicines, new indications and repurposed medicines. To benefit from ILAP, Homology must first apply to the MHRA for an innovation passport. An innovation passport allows for enhanced engagement with the MHRA and its partner agencies. Once an innovation passport has been granted, the next step in the pathway is the preparation of a target development profile, or TDP, document by the MHRA and its partner agencies. The TDP sets out the regulatory and development milestones, identifies potential pitfalls and creates a roadmap to achieving early patient access in the UK. Product developers that benefit from ILAP will be provided with advice on clinical trial design to ensure optimal data generation for both regulatory approval and health technology appraisal.

The competent regulatory authorities in the EU and the UK have broad discretion whether to grant access to the aforementioned schemes and designations, and even if Homology were to be eligible for some of these procedures, it may not experience a faster development process, review or authorization compared to conventional procedures. Moreover, the removal or threat of removal of such designation may create uncertainty or delay in the clinical development of Homology's product candidates and threaten the commercialization prospects of its product candidates, if approved. Such an occurrence could materially impact Homology's business, financial condition and results of operations.

Should Homology resume development of its product candidates, it may attempt to secure approval from the FDA or comparable foreign regulatory authorities through the use of accelerated approval pathways or similar expedited approval pathways outside the United States. If Homology is unable to obtain such approval, it may be required to conduct additional clinical trials beyond those that it contemplates, which could increase the expense of obtaining, and delay the receipt of, necessary marketing approvals. Even if Homology receives accelerated approval from the FDA or similar expedited approval pathways by foreign regulatory authorities, if its confirmatory trials do not verify clinical benefit, or if it does not comply with rigorous post-marketing requirements, the FDA or foreign regulatory authorities may seek to withdraw accelerated approval or similar expedited approval.

To the extent Homology resumes development of its product candidates, it may in the future seek an accelerated approval for one or more of its product candidates. Under the accelerated approval program, the FDA may grant accelerated approval to a product candidate designed to treat a serious or life-threatening condition that provides meaningful therapeutic benefit over available therapies upon a determination that the product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit.

The accelerated approval pathway may be used in cases in which the advantage of a drug or biologic over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's

agreement to conduct, in a diligent manner, confirmatory studies to verity and describe the drug or biologic's predicted clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022, or FDORA, the FDA is permitted to require, as appropriate, that a post-approval confirmatory study or studies be underway prior to approval or within a specified time period after the date of accelerated approval was granted. FDORA also requires sponsors to send updates to the FDA every 180 days on the status of such studies, including progress toward enrollment targets, and the FDA must promptly post this information publicly. FDORA also gives the FDA increased authority to withdraw approval of a drug or biologic granted accelerated approval on an expedited basis, if the sponsor fails to conduct such studies in a timely manner, send the necessary updates to the FDA, or if confirmatory studies fail to confirm such clinical benefit.

In the EU, a "conditional" marketing authorization may be granted in cases where all the required safety and efficacy data are not yet available. A conditional marketing authorization is subject to conditions to be fulfilled for generating missing data or ensuring increased safety measures. A conditional marketing authorization is valid for one year and has to be renewed annually until fulfillment of all relevant conditions. Once the applicable pending studies are provided, a conditional marketing authorization can become a "standard" marketing authorization. However, if the conditions are not fulfilled within the timeframe set by the EMA, the marketing authorization will cease to be renewed. Furthermore, marketing authorizations may also be granted "under exceptional circumstances" when the applicant can show that it is unable to provide comprehensive data on the efficacy and safety under normal conditions of use even after the product has been authorized and subject to the introduction of specific procedures. This may arise when the intended indications are very rare and, in the present state of scientific knowledge, it is not possible to provide comprehensive information, or when generating data may be contrary to generally accepted ethical principles. This type of marketing authorization is close to a conditional marketing authorization as it is reserved to medicinal products to be approved for severe diseases or unmet medical needs and the applicant does not hold the complete data set legally required for the grant of a marketing authorization. However, unlike a conditional marketing authorization, the applicant does not have to provide the missing data and will never have to. Although a marketing authorization "under exceptional circumstances" is granted definitively, the risk-benefit balance of the medicinal product is reviewed annually and the marketing authorization may be withdrawn where the risk-benefit ratio is no longer favorable.

Prior to seeking accelerated approval or similar expedited approval for any of its product candidates, should Homology resume development of its product candidates, Homology may seek feedback from the FDA or other comparable regulatory authorities and will otherwise evaluate its ability to seek and receive accelerated approval or similar expedited approval. Furthermore, if Homology decides to submit an application for accelerated approval or similar expedited approval, there can be no assurance that such submission or application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. The FDA or other comparable foreign regulatory authorities could also require Homology to conduct further studies prior to considering its application or granting approval of any type. A failure to obtain accelerated approval or any other form of expedited development, review or approval for Homology's product candidate would result in a longer time period to commercialization of such product candidate, or make commercialization unfeasible, and could increase the cost of development of such product candidate and could harm Homology's competitive position in the marketplace.

Homology may seek orphan drug designation for its product candidates should it resume its development activities in the future, but any orphan drug designations Homology may receive may not confer marketing exclusivity or other expected benefits.

In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. In addition, if a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity. Orphan drug exclusivity in the United States provides that the FDA may not approve any other applications, including a full BLA, to market the same drug for the same disease or condition for seven years, except in limited circumstances. The applicable exclusivity period

is ten years in the EU. The European exclusivity period can be reduced to six years if, at the end of the fifth year, a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified.

In the future, even if Homology, or any prospective collaborators, obtain orphan drug designation for a product candidate, Homology, or they, may not be able to obtain or maintain orphan drug exclusivity for that product candidate. Homology may not be the first to obtain marketing approval of any product candidate for which Homology has obtained orphan drug designation for the orphan-designated disease or condition due to the uncertainties associated with developing pharmaceutical products. In addition, exclusive marketing rights in the United States may be limited if Homology seeks approval for a disease or condition broader than the orphan-designated disease or condition or may be lost if the FDA later determines that the request for designation was materially defective or if Homology is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. Further, even if Homology, or any future collaborators, obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties may be approved for the same disease or condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug for the same disease or condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care or the manufacturer of the product with orphan exclusivity is unable to maintain sufficient product quantity. Orphan drug designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process, nor does it prevent competitors from obtaining approval of the same product candidate as Homology's for diseases or conditions other than those in which Homology has been granted orphan drug designation. The same principles are valid for the EU as well.

A Regenerative Medicine Advanced Therapy designation from the FDA, or Advanced Therapy Medicinal Product classification by the EMA, even if granted for any of Homology's product candidates, may not lead to a faster development or regulatory review or approval process and does not increase the likelihood that Homology's product candidates will receive marketing approval.

Should Homology resume development of its product candidates, Homology may seek a Regenerative Medicine Advanced Therapy, or RMAT, designation for HMI-102 or its product candidates. In 2017, the FDA established the RMAT designation as part of its implementation of the 21st Century Cures Act. An investigational drug is eligible for RMAT designation if: (1) it meets the definition of a regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious disease or condition; and (3) preliminary clinical evidence indicates that the investigational drug has the potential to address unmet medical needs for such disease or condition. In a February 2019 final guidance, the FDA also stated that certain gene therapies that lead to a sustained effect on cells or tissues may meet the definition of a regenerative medicine therapy. RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate, and eligibility for rolling review of BLAs and priority review. Product candidates granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites, as appropriate. RMAT-designated product candidates that receive accelerated approval may, as appropriate, fulfill their post-approval requirements through the submission of clinical evidence, clinical studies, patient registries, or other sources of real world evidence (such as electronic health records); through the collection of larger confirmatory data sets; or via post-approval monitoring of all patients treated with such therapy prior to approval of the therapy.

RMAT designation does not change the standards for product approval, and there is no assurance that such designation or eligibility for such designation will result in expedited review or approval or that the approved indication will not be narrower than the indication covered by the RMAT designation. Additionally, RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges.

In the EU, a specific framework has been implemented for ATMPs to facilitate their access to the EU market. An ATMP can be classified into three main types of medicinal products: (i) gene therapy medicinal products containing genes that lead to a therapeutic, prophylactic or diagnostic effect, (ii) somatic-cell therapy medicinal products containing cells or tissues that have been manipulated to change their biological characteristics or cells or tissues not intended to be used for the same essential functions in the body which can be used to cure, diagnose or prevent diseases, and (iii) tissue-engineered products containing cells or tissues that have been modified so they can be used to repair, regenerate or replace human tissue. Companies developing product candidates may seek a scientific recommendation from the EMA's CAT on ATMP classification. This optional procedure allows applicants to clarify whether a given product candidate based on genes, cells or tissues meets the scientific criteria which define ATMPs, in order to address, as early as possible, questions of borderline with other areas, which may arise as science develops. ATMP classification recommendation is adopted by the EMA's CAT, after consultation with the EC. The EMA offers a range of advisory services and incentives to support the development of ATMPs such as contribution of the CAT's members in the discussion of the scientific advice and fee waivers. Similarly to RMAT designation, ATMP classification in the EU does not change the standards for product approval, and there is no assurance that such classification will result in expedited review or approval.

Homology's contract manufacturers, including Oxford Biomedica (US) LLC, are subject to significant regulation with respect to manufacturing its former product candidates. The manufacturing facilities which Homology has historically and may in the future rely may not meet or continue to meet regulatory requirements, as applicable and as imposed to date, and have limited capacity.

Historically, Homology has had relationships with a limited number of suppliers for the manufacturing of its viral vectors and product candidates. In March 2022, Homology closed an agreement with Oxford to establish a new AAV vector manufacturing company, Oxford Biomedica (US) LLC, that incorporates Homology's proven 'plug and play' process development and manufacturing platform, as well as its experienced team and high-quality GMP vector production capabilities that Homology built and operated since 2019. The related transactions closed on March 10, 2022. Each supplier may require licenses to manufacture such components if such processes are not owned by the supplier or in the public domain and Homology may be unable to transfer or sublicense the intellectual property rights it may have with respect to such activities.

All entities involved in the preparation of therapeutics for clinical studies or commercial sale, including Homology's existing contract manufacturers for its product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in late-stage clinical studies must be manufactured in accordance with GMP or similar requirements outside the United States. These regulations govern manufacturing processes and procedures (including record keeping) and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of adventitious agents or other contaminants, or to inadvertent changes in the properties or stability of Homology's product candidates that may not be detectable in final product testing. Homology's contract manufacturers must supply all necessary documentation in support of a BLA on a timely basis and must adhere to the FDA's current good laboratory practices, or GLP, and GMP regulations enforced by the FDA through its facilities inspection program. Similar requirements apply in foreign jurisdictions. Some of Homology's contract manufacturers have not produced a commercially-approved product and therefore have not obtained the requisite FDA and foreign regulatory approvals to do so. Homology's facilities and quality systems and the facilities and quality systems of some or all of its third-party contractors must pass a pre-approval inspection for compliance with the applicable regulations as a condition of regulatory approval of its product candidates or any of its other potential products. In addition, the regulatory authorities may, at any time, audit or inspect a manufacturing facility involved with the preparation of Homology's product candidates or its other potential products or the associated quality systems for compliance with the regulations applicable to the activities being conducted. If these facilities do not pass a pre-approval plant inspection, FDA or foreign regulatory authorities approval of the products will not be granted.

The regulatory authorities also may, at any time following approval of a product for sale, audit Homology's manufacturing facilities or those of its third-party contractors. If any such inspection or audit identifies a failure to comply with applicable regulations or if a violation of Homology's product specifications or applicable regulations occurs independent of such an inspection or audit, Homology or the relevant regulatory authority may require remedial measures that may be costly and/or time-consuming for Homology or a third party to implement and that may include the temporary or permanent suspension of a clinical study or commercial sales or the temporary or permanent closure of a facility. Any such remedial measures imposed upon Homology or third parties with whom Homology contracts could materially harm its business.

If Homology's third-party manufacturers fail to maintain regulatory compliance, the FDA or other regulatory authorities can impose regulatory sanctions including, among other things, refusal to approve a pending application for a new drug product or biologic product, or revocation of a pre-existing approval. As a result, Homology's business, financial condition and results of operations may be materially harmed.

Additionally, if supply from one approved manufacturer is interrupted, there could be a significant disruption in commercial supply. An alternative manufacturer would need to be qualified through a BLA supplement and/or marketing authorization application supplement which could result in further delay. The regulatory agencies may also require additional studies if a new manufacturer is relied upon for commercial production. Switching manufacturers may involve substantial costs and is likely to result in a delay in Homology's desired clinical and commercial timelines.

These factors could cause the delay of clinical studies, regulatory submissions, required approvals or commercialization of Homology's product candidates, cause Homology to incur higher costs and prevent Homology from commercializing its products successfully. Furthermore, if its suppliers fail to meet contractual requirements, and Homology is unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, its clinical studies may be delayed or Homology could lose potential revenue.

If Homology resumes development of product candidates and encounters difficulties enrolling patients in its clinical trials, Homology's clinical development activities could be delayed or otherwise adversely affected.

Should Homology resume development of its product candidates, the timely completion of clinical trials would depend, among other things, on its ability to enroll a sufficient number of patients who remain in the study until its conclusion. Homology may encounter delays in enrolling, or be unable to enroll, a sufficient number of patients to complete any of its clinical trials, and even once enrolled Homology may be unable to retain a sufficient number of patients to complete any of its trials. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the protocol;
- the size of the patient population required for analysis of the trial's primary endpoints;
- the proximity of patients to study sites;
- the design of the trial;
- Homology's ability to recruit clinical trial investigators with the appropriate competencies and experience;
- clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new products that may be approved for the indications Homology is investigating;
- Homology's ability to obtain and maintain patient consents; and
- the risk that patients enrolled in clinical trials will drop out of the trials before completion.

In addition, should Homology resume development of its product candidates, its clinical trials would compete with other clinical trials for product candidates that are in the same therapeutic areas as its product candidates, and this competition would reduce the number and types of patients available to Homology, because some patients who might have opted to enroll in its trials may instead opt to enroll in a trial being conducted by one of its competitors. Since the number of qualified clinical investigators is limited, Homology would expect to conduct some of its clinical trials at the same clinical trial sites that some of its competitors use, which would reduce the number of patients who are available for Homology's clinical trials in such clinical trial site.

Delays or failures in planned patient enrollment or retention may result in increased costs, program delays or both, which could have a harmful effect on Homology's ability to develop its product candidates, or could render further development impossible.

Homology's product candidates have caused and may in the future cause serious adverse events or undesirable side effects or have other properties which may delay or prevent their regulatory approval, limit the commercial profile of an approved label or result in significant negative consequences following marketing approval, if any.

Serious adverse events or undesirable side effects caused by Homology's product candidates have caused, and could in the future cause, Homology or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign authorities. Results of Homology's clinical trials could reveal a high and unacceptable severity and prevalence of side effects, toxicities or unexpected characteristics, including death. A significant risk in any gene editing product is that the edit will be "off-target" (or "on-target," but unwanted) and cause serious adverse events, undesirable side effects, toxicities or unexpected characteristics. For example, off-target cuts could lead to disruption of a gene or a genetic regulatory sequence at an unintended site in the DNA, or, in those instances where Homology also provides a segment of DNA to serve as a repair template, it is possible that following off-target cut events, DNA from such repair template could be integrated into the genome at an unintended site, potentially disrupting another important gene or genomic element. Homology cannot be certain that off-target editing will not occur in any of its planned or future clinical studies. There is also the potential risk of delayed adverse events following exposure to gene editing and/or gene therapy, due to the potential for persistent biological activity of the genetic material or other product components used to carry the genetic material. Accordingly, the FDA typically recommends an extended follow-up period to monitor for such events in patients who have received investigational gene therapies. Although Homology has communicated to FDA its intent to withdraw or inactive its previously open INDs and discontinue development of its product candidates, as well as its determination that such long-term follow-up is not necessary for its product candidates, FDA may disagree, and may continue to recommend that such follow-up be conducted.

If Homology resumes development of its product candidates and unacceptable side effects arise in the development of such product candidates, Homology, the FDA, the IRBs at the institutions in which Homology's studies are conducted or DMC, could suspend or terminate Homology's clinical trials or the FDA or comparable foreign regulatory authorities could order Homology to cease clinical trials or deny approval of Homology's product candidates for any or all targeted indications. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff. Homology expects to have to train medical personnel using Homology's product candidates to understand the side effect profiles for its clinical trials and upon any commercialization of any of its product candidates. Inadequate training in recognizing or managing the potential side effects of Homology's product candidates could result in patient injury or death. Any of these occurrences may harm Homology's business, financial condition and prospects significantly.

If Homology resumes development of its product candidates and any of its product candidates receives marketing approval, and Homology or others later identify undesirable side effects caused by any such product, including during any long-term follow-up observation period recommended or required for patients who receive treatment using Homology's products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approvals of such product;
- Homology may be required to recall a product or change the way such product is administered to patients;
- additional restrictions may be imposed on the marketing of the particular product or the manufacturing processes for the product;
- regulatory authorities may require additional warnings on the label, such as a "black box" warning or contraindication;
- Homology may be required to implement a Risk Evaluation and Mitigation Strategy, or REMS, or create a medication guide outlining the risks of such side effects for distribution to patients or implement similar risk management measures;
- the product could become less competitive;
- Homology could be sued and held liable for harm caused to patients; and
- Homology's reputation may suffer.

Any of these events could prevent Homology from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm its business, results of operations and prospects.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable.

The time required to obtain approval by the FDA and comparable foreign authorities is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations, or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. Homology has not obtained regulatory approval for any product candidate and has communicated to FDA its intent to withdraw or inactivate its previously open INDs. It is possible that neither Homology's product candidates previously in development (should Homology elect to restart its development programs), nor any other product candidates Homology may seek to develop in the future will ever obtain regulatory approval. Neither Homology nor any future collaborator is permitted to market any of Homology's product candidates in the United States until Homology receives regulatory approval of a BLA from the FDA. It is possible that the FDA may refuse to file for substantive review any BLAs, that Homology submits for its product candidates or may conclude after review of Homology's data that its application is insufficient to obtain marketing approval of its product candidates. Similar risks exist in foreign jurisdictions.

Prior to obtaining approval to commercialize a product candidate in the United States or abroad, Homology or its collaborators must demonstrate with substantial evidence from well-controlled clinical trials, and to the satisfaction of the FDA or foreign regulatory authorities, that such product candidates are safe and effective, or in the case of biologics, safe, pure, and potent, for their intended uses. Results from nonclinical studies and clinical trials can be interpreted in different ways. Even if Homology believes the nonclinical or clinical data for its product candidates are promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. The FDA and other regulatory authorities may also require Homology to conduct

additional preclinical studies or clinical trials for Homology's product candidates either prior to or post-approval, or it may object to elements of Homology's clinical development program. Depending on the extent of these or any other FDA-and other regulatory authorities-required studies, approval of any BLA or application that Homology submits may be delayed by several years, or may require Homology to expend significantly more resources than Homology has available.

Of the large number of potential products in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in Homology's failing to obtain regulatory approval to market its product candidates, which would significantly harm Homology's business, results of operations and prospects.

In addition, even if Homology were to obtain approval, regulatory authorities may approve any of Homology's product candidates for fewer or more limited indications than Homology requests, may not approve the price Homology intends to charge for its products, may grant approval contingent on the performance of costly post-marketing clinical trials, including Phase 4 clinical trials, and/or the implementation of a REMS or similar risk management measures, which may be required to ensure safe use of the drug after approval. The FDA or the applicable foreign regulatory agency also may approve a product candidate for a more limited indication or patient population than Homology originally requested, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for Homology's product candidates.

In addition, changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. For instance, the EU pharmaceutical legislation is currently undergoing a complete review process, in the context of the Pharmaceutical Strategy for Europe initiative, launched by the EC in November 2020. The EC's proposal for revision of several legislative instruments related to medicinal products (including potentially revising the duration of regulatory exclusivity and eligibility for expedited pathways) was published on April 26, 2023. The proposed revisions remain to be agreed and adopted by the European Parliament and European Council (not expected before the end of 2024 or early 2025). The revisions may, however, have a significant impact on the pharmaceutical industry and Homology's business in the long term.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, which could negatively impact Homology's business to the extent Homology resumes such activities.

The ability of the FDA and foreign regulatory authorities to review and or approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, the FDA's or and foreign regulatory authorities' ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's or foreign regulatory authorities' ability to perform routine functions. Average review times at the agency and foreign regulatory authorities have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies, such as the EMA following its relocation to Amsterdam and related reorganization, may also slow the time necessary for new drugs and biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect Homology's business. For example, over the last several years, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities.

Even if Homology restarts development of its product candidates and obtains FDA approval for its product candidates in the United States in the future, it may never obtain approval for or commercialize them in any other jurisdiction, which would limit its ability to realize their full market potential.

In order to market any products in any particular jurisdiction, Homology must establish and comply with numerous and varying regulatory requirements on a country-by-country basis regarding safety and efficacy. Approval by the FDA in the United States does not ensure approval by regulatory authorities in other countries or jurisdictions. However, the failure to obtain approval in any one jurisdiction may negatively impact Homology's ability to obtain approval elsewhere. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country.

Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approval could result in difficulties and increased costs for Homology and require additional preclinical studies or clinical trials which could be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of Homology's products in those countries. Homology does not have any product candidates approved for sale in any jurisdiction, including in international markets, and it does not have experience in obtaining regulatory approval in international markets. If Homology fails to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, its target market will be reduced and its ability to realize the full market potential of any product it develops will be unrealized.

Even if Homology restarts development of and receives regulatory approval of its product candidates, Homology will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense, and it may be subject to penalties if it fails to comply with regulatory requirements or experience unanticipated problems with its product candidates.

Any product candidate for which Homology obtains marketing approval will be subject to extensive and ongoing requirements of and review by the FDA and other regulatory authorities, including oversight of the manufacturing processes, post-approval clinical data, labeling, packaging, distribution, adverse event reporting, storage, recordkeeping, export, import, advertising and promotional activities for such product, among other things. These requirements include submissions of safety and other post-marketing information and reports, establishment registration and drug listing requirements, continued compliance with GMP requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping and GCP requirements for any clinical trials that Homology conducts post-approval. Manufacturers of drug products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with GMP or similar regulations and standards.

In addition, any marketing approvals that Homology may receive for its product candidates may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS in order to approve Homology's product candidates, which could entail requirements for a medication guide, physician training and communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools.

In addition, later discovery of previously unknown adverse events or other problems with Homology's products, manufacturers or manufacturing processes, including adverse events of unanticipated severity or frequency, or with Homology's third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

- restrictions on manufacturing such products;

- restrictions on the labeling or marketing of a product;
- restrictions on product distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters or holds on clinical trials;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that Homology submits;
- recall of products;
- fines, restitution or disgorgement of profits or revenues;
- suspension or withdrawal of marketing approvals;
- refusal to permit the import or export of Homology's products;
- product seizure or detention; or
- injunctions or the imposition of civil or criminal penalties.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of Homology's product candidates.

Homology also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If Homology is slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if Homology is not able to maintain regulatory compliance, it may be subject to enforcement action and it may not achieve or sustain profitability.

The FDA and other regulatory authorities actively enforce the laws and regulations prohibiting the promotion of off-label uses.

If Homology restarts development of its product candidates and any of Homology's product candidates are approved, and if Homology is found to have improperly promoted off-label uses of those products, Homology may become subject to significant liability. The FDA and other regulatory authorities strictly regulate the promotional claims that may be made about prescription products, such as Homology's product candidates, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. If Homology receives marketing approval for a product candidate, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If Homology is found to have promoted such off-label uses, it may become subject to significant liability. The U.S. federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The FDA has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. If Homology cannot successfully manage the promotion of its product candidates, if approved, Homology could become subject to significant liability, which would materially adversely affect its business and financial condition.

Potential product liability lawsuits against Homology could cause it to incur substantial liabilities and limit commercialization of any products that it may develop.

The use of Homology's product candidates in clinical trials and the sale of any products for which Homology obtains marketing approval exposes it to the risk of product liability claims. Product liability claims might be brought against Homology by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with its products. On occasion, large judgments have been awarded in class action lawsuits based on products that had unanticipated adverse effects. If Homology cannot successfully defend against product liability claims, it could incur substantial liability and costs. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of Homology's business reputation and significant negative media attention;
- withdrawal of participants from Homology's clinical trials;
- significant costs to defend the related litigation and related litigation;
- distraction of management's attention from Homology's primary business;
- substantial monetary awards to patients or other claimants;
- inability to commercialize Homology's product candidates;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- decreased demand for Homology's product candidates, if approved for commercial sale; and
- loss of revenue.

Homology's insurance policies are expensive and protect Homology only from some business risks, which leaves it exposed to significant uninsured liabilities.

Homology does not carry insurance for all categories of risk that its business may encounter. Some of the policies Homology currently maintains include general liability, employment practices liability, property, auto, workers' compensation, umbrella, and directors' and officers' insurance.

Any additional product liability insurance coverage Homology acquires in the future, may not be sufficient to reimburse Homology for any expenses or losses it may suffer. Moreover, insurance coverage is becoming increasingly expensive and in the future Homology may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect it against losses due to liability. If Homology obtains marketing approval for any of its product candidates, Homology intends to acquire insurance coverage to include the sale of commercial products; however, Homology may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. A successful product liability claim or series of claims brought against Homology could cause its share price to decline and, if judgments exceed its insurance coverage, could adversely affect its results of operations and business, including preventing or limiting the commercialization of any product candidates it develops. Homology does not carry specific biological or hazardous waste insurance coverage, and its property, casualty and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, Homology could be held liable for damages or be penalized with fines in an amount exceeding its resources, and its clinical trials or regulatory approvals could be suspended.

Homology also expects that operating as a public company will continue to make it more expensive for it to obtain director and officer liability insurance, and Homology may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for Homology to attract and retain qualified people to serve on its board of directors, its board committees or as executive officers. Homology does not know if it will be able to maintain existing insurance with adequate levels of coverage. Any significant uninsured liability may require Homology to pay substantial amounts, which would adversely affect its cash position and results of operations.

Homology's employees and independent contractors, including principal investigators, CROs, consultants, vendors, and any third parties Homology may engage in connection with development and commercialization, to the extent Homology resumes such activities, may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on Homology's business.

Misconduct by Homology's employees and independent contractors, including principal investigators, CROs, consultants, vendors, and any third parties Homology may engage in connection with development and commercialization, could include intentional, reckless or negligent conduct or unauthorized activities that violate: (i) the laws and regulations of the FDA, foreign regulatory authorities rules and regulations and other similar regulatory requirements, including those laws that require the reporting of true, complete and accurate information to such authorities; (ii) manufacturing standards; or (iii) data privacy, security, fraud and abuse and other healthcare laws and regulations. Specifically, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Activities subject to these laws could also involve the improper use or misrepresentation of information obtained in the course of clinical trials, creation of fraudulent data in preclinical studies or clinical trials or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to Homology's reputation. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions Homology takes to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting it from governmental investigations or other actions or lawsuits stemming from a failure to comply with such laws or regulations. Additionally, Homology is subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against Homology, and Homology is not successful in defending ourselves or asserting its rights, those actions could have a significant impact on Homology's business and results of operations, including the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid, other U.S. federal healthcare programs or healthcare programs in other jurisdictions, individual imprisonment, other sanctions, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of Homology's operations.

Homology's business and operations may suffer in the event of information technology system failures, cyberattacks or deficiencies in its cybersecurity.

In the ordinary course of its business, Homology collects and store sensitive data, including intellectual property, clinical trial data, proprietary business information, personal data and personally identifiable information of its clinical trial subjects and employees, in its data centers and on its networks. The secure processing, maintenance and transmission of this information is critical to Homology's operations. Homology's information technology systems, as well as those of its CROs and other contractors and consultants, are vulnerable to failure or damage from computer viruses and malware (e.g. ransomware), unauthorized access or other cybersecurity attacks, natural disasters (including hurricanes), international terrorism and conflicts, and telecommunication and electrical failures. Homology and certain of its service providers are from time to time subject to cyberattacks and security incidents. While Homology does not believe that it has experienced any significant system failure, accident or security breach to date, if such an event were to occur and cause interruptions in its operations, it could result in a material disruption of Homology's product candidate development programs. For example, should Homology resume the development of its product candidates, the loss of preclinical or clinical trial data from completed, ongoing or planned trials could result in delays in Homology's regulatory approval efforts and significantly increase its costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of or damage to Homology's data or applications, or inappropriate disclosure of personal, confidential or proprietary information, Homology could incur liability and the further development of its product candidates could be delayed.

Despite Homology's security measures, its information technology and infrastructure may be vulnerable to attacks by hackers or internal bad actors, or breached due to human error (e.g., social engineering, phishing), a technical vulnerability, malfeasance or other disruptions. Attacks upon information technology systems are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise.

Homology may also face cybersecurity risks due to its reliance on internet technology and the number of its employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. Even if identified, Homology may be unable to adequately investigate or remediate incidents or breaches due to attackers increasingly using tools and techniques (including artificial intelligence) that are designed to circumvent controls, to avoid detection, and to remove or obfuscate forensic evidence. Any significant security breach could compromise Homology's networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could require significant resources to remediate or recover from the incident, result in legal claims or proceedings (including class actions), liability under laws that protect the privacy of personal information, significant regulatory penalties, and such an event could disrupt Homology's operations, damage its reputation, and cause a loss of confidence in Homology and its ability to conduct clinical trials, which could adversely affect Homology's reputation and delay its clinical development of its product candidates. Further, Homology's insurance coverage may not be sufficient to cover the financial, legal, business or reputational losses that may result from an interruption or breach of its systems.

Should Homology resume development of its product candidates, initial, interim, "top-line" and preliminary data from its clinical trials that it announces or publishes from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

If Homology resumes development of product candidates it may publicly disclose initial, interim, top-line or preliminary data from its clinical trials, which would be based on a preliminary analysis of then-available data, and the results and related findings and conclusions would be subject to change following a more comprehensive review of the data related to the particular study or trial. Homology also makes assumptions, estimations, calculations and conclusions as part of its analyses of data, and it may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the initial, top-line or preliminary results that Homology reports may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Initial, top-line or preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the initial, top-line or preliminary data Homology previously published. Should Homology resume development of its product candidates, further clinical data from any trials of its candidates may not be consistent with data previously observed and disclosed in preclinical studies or clinical trials. As a result, initial, top-line and preliminary data should be viewed with caution until the final data are available.

Homology may also disclose interim or initial data from its preclinical studies and clinical trials. Interim or initial data from clinical trials that Homology may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between initial, interim, top-line or preliminary data and final data could significantly harm Homology's business prospects. Further, disclosure of any such data by Homology or by its competitors could result in volatility in the price of its common stock.

Further, others, including regulatory agencies, may not accept or agree with Homology's assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate or product and Homology in general. In addition, the information Homology chooses to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what Homology determines is material or otherwise appropriate information to include in its disclosure.

If the top-line or preliminary data that Homology reports differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, Homology's ability to obtain approval for, and commercialize, its product candidates may be harmed, which could harm its business, operating results, prospects or financial condition.

To the extent Homology resumes development of its product candidates, it may expend its limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because Homology has limited financial and managerial resources, Homology has focused on research programs and product candidates that it identifies for specific indications. As a result, Homology may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Homology's resource allocation decisions may cause Homology to fail to timely capitalize on viable commercial products or profitable market opportunities. Homology's spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If Homology does not accurately evaluate the commercial potential or target market for a particular product candidate, Homology may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for Homology to retain sole development and commercialization rights to such product candidate.

Risks Related to Healthcare Laws and Other Legal Compliance Matters

If Homology resumes development of its product candidates, enacted and future healthcare legislation could increase the difficulty and cost for Homology to obtain marketing approval of and commercialize its product candidates and may affect the prices Homology may set.

In the United States, the EU and other jurisdictions, there have been, and Homology expects there will continue to be, a number of legislative and regulatory changes and proposed changes to the healthcare system that could affect Homology's future results of operations. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare. For example, in 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively the ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers. Among the provisions of the ACA, those of greatest importance to the pharmaceutical and biotechnology industries include the following:

- an annual, non-deductible fee payable by any entity that manufactures or imports certain branded prescription drugs and biologic agents (other than those designated as orphan drugs), which is apportioned among these entities according to their market share in certain government healthcare programs;
- a Medicare Part D coverage gap discount program, in which manufacturers must agree to offer point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13.0% of the average manufacturer price for branded and generic drugs, respectively;
- extension of a manufacturer's Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid, thereby potentially increasing a manufacturer's Medicaid rebate liability; and
- a Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, the Budget Control Act of 2011 resulted in aggregate reductions of Medicare payments to providers, which went into effect in April 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2031, unless additional action is taken by Congress. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws or any other similar laws introduced in the future may result in additional reductions in Medicare and other healthcare funding, which could negatively affect Homology's customers and accordingly, its financial operations.

Moreover, payment methodologies may be subject to changes in healthcare legislation and regulatory initiatives. For example, CMS may develop new payment and delivery models, such as bundled payment models. On March 11, 2021, the American Rescue Plan Act of 2021 was signed into law, which eliminates the statutory cap on the Medicaid drug rebate, currently set at 100% of a drug's AMP, beginning January 1, 2024.

In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products. On August 16, 2022, the Inflation Reduction Act of 2022, or IRA, was signed into law. Among other things, the IRA requires manufacturers of certain drugs to engage in price negotiations with Medicare (beginning in 2026), with prices that can be negotiated subject to a cap; imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation (first due in 2023); and replaces the Part D coverage gap discount program with a new discounting program (beginning in 2025). The IRA permits the Secretary of the Department of Health and Human Services (HHS) to implement many of these provisions through guidance, as opposed to regulation, for the initial years. Further, under the IRA, orphan drugs are exempted from the Medicare drug price negotiation program, but only if they have one orphan designation and for which the only approved indication is for that disease or condition. If a product receives multiple orphan designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The implementation of the IRA is currently subject to ongoing litigation challenging the constitutionality of the IRA's Medicare drug price negotiation program. The impact of the IRA on Homology's business and the pharmaceutical industry cannot yet be fully determined, but it could have a significant impact. In particular, if a product becomes subject to the IRA negotiation provision and related price cap, that may significantly alter the economic rationale for developing and commercializing a biosimilar. Homology expects that additional U.S. federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that the U.S. federal government will pay for healthcare products and services, which could result in reduced demand for Homology's product candidates or additional pricing pressures.

Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally-mandated price controls on payment amounts by third-party payors or other restrictions could harm Homology's business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for Homology's product candidates or put pressure on its product pricing.

In the EU, similar political, economic and regulatory developments may affect Homology's ability to profitably commercialize its product candidates, if approved. In addition to continuing pressure on prices and cost containment measures, legislative developments at the EU or member state level may result in significant additional requirements or obstacles that may increase Homology's operating costs. The delivery of healthcare in the EU, including the establishment and operation of health services and the pricing and reimbursement of

medicines, is almost exclusively a matter for national, rather than EU, law and policy. National governments and health service providers have different priorities and approaches to the delivery of healthcare and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most EU member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing EU and national regulatory burdens on those wishing to develop and market products, this could prevent or delay marketing approval of Homology's product candidates, restrict or regulate post-approval activities and affect its ability to commercialize its product candidates, if approved.

In markets outside of the United States and EU, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies.

On December 13, 2021, Regulation No 2021/2282 on Health Technology Assessment, or HTA amending Directive 2011/24/EU, was adopted. While the regulation entered into force in January 2022, it will only begin to apply from January 2025 onwards, with preparatory and implementation-related steps to take place in the interim. Once the regulation becomes applicable, it will have a phased implementation depending on the concerned products. The regulation intends to boost cooperation among EU member states in assessing health technologies, including new medicinal products, and providing the basis for cooperation at the EU level for joint clinical assessments in these areas. The regulation will permit EU member states to use common HTA tools, methodologies, and procedures across the EU, working together in four main areas, including joint clinical assessment of the innovative health technologies with the most potential impact for patients, joint scientific consultations whereby developers can seek advice from HTA authorities, identification of emerging health technologies to identify promising technologies early, and continuing voluntary cooperation in other areas. Individual EU member states will continue to be responsible for assessing non-clinical (e.g., economic, social, ethical) aspects of health technology, and making decisions on pricing and reimbursement.

Homology cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action in the United States, the EU or any other jurisdiction. If Homology or any third parties it may engage are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if Homology or such third parties are not able to maintain regulatory compliance, Homology's product candidates may lose any regulatory approval that may have been obtained and Homology may not achieve or sustain profitability.

Homology's business operations and current and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose Homology to penalties.

Homology's business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers, may expose it to broadly applicable fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which Homology conducts its operations, including how it researches, markets, sells and distributes its product candidates, if approved. Such laws include:

- the U.S. federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe, or certain rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease, order or recommendation of, any good, facility, item or service, for which payment may be made, in whole or in part, under U.S. federal and state healthcare programs such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- the U.S. federal false claims and civil monetary penalties laws, including the civil False Claims Act, which, among other things, impose criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the U.S. federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making a false statement to avoid, decrease or conceal an obligation to pay money to the U.S. federal government. The federal False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the federal False Claims Act and to share in any monetary recovery. In addition, the government may assert that a claim including items and services resulting from a violation of the U.S. federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act;
- The Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services; similar to the U.S. federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the FDCA, which prohibits, among other things, the adulteration or misbranding of drugs, biologics and medical devices;
- the U.S. Public Health Service Act, which prohibits, among other things, the introduction into interstate commerce of a biological product unless a biologics license is in effect for that product;
- the U.S. federal legislation commonly referred to as the Physician Payments Sunshine Act, enacted as part of the ACA, and its implementing regulations, which requires certain manufacturers of drugs, devices, biologics and medical supplies that are reimbursable under Medicare, Medicaid, or the Children's Health Insurance Program to report annually to the government information related to certain payments and other transfers of value to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain non-physician practitioners (physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, anesthesiologist assistants and certified nurse midwives), and teaching hospitals, as well as ownership and investment interests held by the physicians described above and their immediate family members;
- analogous U.S. state laws and regulations, including: state anti-kickback and false claims laws, which may apply to Homology's business practices, including but not limited to, research, distribution, sales and marketing arrangements and claims involving healthcare items or services reimbursed by any third-party payor, including private insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the U.S. federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; and state laws and regulations that require drug manufacturers to file reports relating to pricing and marketing information, which requires tracking gifts and other remuneration and items of value provided to healthcare professionals; and
- similar healthcare laws and regulations in the EU and other jurisdictions, including reporting requirements detailing interactions with and payments to healthcare providers. For instance, in the EU, interactions between pharmaceutical companies and healthcare professionals and healthcare organizations are also governed by strict laws, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct both at EU level and member states level. The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of pharmaceutical products is prohibited in the EU. Relationships with healthcare professionals and associations are subject to stringent anti-gift statutes

and anti-bribery laws, the scope of which differs across the EU. In addition, national "Sunshine Acts" may require pharmaceutical companies to report/publish transfers of value provided to healthcare professionals and associations on a regular (e.g. annual) basis.

Ensuring that Homology's internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that Homology's business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable fraud and abuse or other healthcare laws and regulations. If Homology's operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to Homology, Homology may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of Homology's operations. If any of the physicians or other providers or entities with whom Homology expects to do business are found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs and imprisonment, which could affect Homology's ability to operate its business. Further, defending against any such actions can be costly, time-consuming and may require significant personnel resources. Therefore, even if Homology is successful in defending against any such actions that may be brought against it, its business may be impaired.

Actual or perceived failures to comply with applicable data protection, privacy and security laws, regulations, standards and other requirements could adversely affect Homology's business, results of operations, and financial condition.

The global data protection landscape is rapidly evolving, and Homology is or may become subject to numerous state, federal and foreign laws, requirements and regulations governing the collection, use, disclosure, retention, and security of personal information, such as information that Homology may collect in connection with clinical trials. In the United States, HIPAA as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, and regulations promulgated thereunder, or collectively, HIPAA, imposes, among other things, certain standards relating to the privacy, security, transmission and breach reporting of individually identifiable health information. Certain states have also adopted comparable privacy and security laws and regulations, some of which may be more stringent than HIPAA. Such laws and regulations will be subject to interpretation by various courts and other governmental authorities, thus creating potentially complex compliance issues for Homology and its future customers and strategic partners. For example, California enacted the California Consumer Privacy Act, or CCPA, which went into effect January 1, 2020. The CCPA increases data privacy obligations for covered companies and provides individual privacy rights to California consumers, including the right to opt out of certain disclosures of their information. The CCPA also creates a private right of action with statutory damages for certain data breaches, thereby potentially increasing the likelihood of and risks associated with a data breach. Although the law includes limited exceptions, including for "protected health information" maintained by a covered entity or business associate, it may regulate or impact Homology's processing of personal information depending on the context. Further, the California Privacy Rights Act, or CPRA, generally went into effect on January 1, 2023 and significantly amends the CCPA. It imposes additional data protection obligations on covered companies doing business in California, including additional consumer rights processes and opt outs for certain uses of sensitive data. It also creates a new California data protection agency specifically tasked to enforce the law, which will likely result in increased regulatory scrutiny of California businesses in the areas of data protection and security. The substantive requirements for businesses subject to the CPRA become enforceable on July 1, 2023. Similar laws have passed in other states and are continuing to be proposed at the state and federal level, reflecting a trend toward more stringent privacy legislation in the United States. The enactment of such laws could have potentially conflicting requirements that would make compliance challenging.

Furthermore, the Federal Trade Commission, or FTC, and many state Attorneys General continue to enforce federal and state consumer protection laws against companies for online collection, use, dissemination and security practices that appear to be unfair or deceptive. For example, according to the FTC, failing to take appropriate steps to keep consumers' personal information secure can constitute unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities.

Homology's operations abroad may also be subject to increased scrutiny or attention from data protection authorities. For example, in Europe, the GDPR imposes obligations and restrictions on the collection and use of personal data relating to individuals located in the European Economic Area, or EEA. Companies that must comply with the GDPR face increased compliance obligations and risk, including more robust regulatory enforcement of data protection requirements and potential fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company, whichever is greater. Among other requirements, the GDPR regulates transfers of personal data subject to the GDPR to third countries that have not been found to provide adequate protection to such personal data, including the United States. Case law from the Court of Justice of the European Union, or CJEU, states that reliance on the standard contractual clauses – a standard form of contract approved by the European Commission as an adequate personal data transfer mechanism – alone may not necessarily be sufficient in all circumstances and that transfers must be assessed on a case-by-case basis. Following a period of legal complexity and uncertainty regarding international personal data transfers, particularly to the United States, Homology expects the regulatory guidance and enforcement landscape to continue to develop, in relation to transfers to the United States and elsewhere. As a result, Homology may have to make certain operational changes and it will have to implement revised standard contractual clauses and other relevant documentation for existing data transfers within required time frames.

Since the beginning of 2021, Homology has also been subject to the UK data protection regime, which imposes separate but similar obligations to those under the GDPR and comparable penalties, including fines of up to £17.5 million or 4% of a noncompliant company's global annual revenue for the preceding financial year, whichever is greater. If Homology continues to expand into other foreign countries and jurisdictions, it may be subject to additional laws and regulations that may affect how it conducts business.

Although Homology works to comply with applicable laws, regulations and standards, its contractual obligations and other legal obligations, these requirements are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another or other legal obligations with which Homology must comply. Any failure or perceived failure by Homology or its employees, representatives, contractors, consultants, collaborators, or other third parties to comply with such requirements or adequately address privacy and security concerns, even if unfounded, could result in additional cost and liability to Homology, damage its reputation, and adversely affect its business and results of operations.

Homology is subject to environmental, health and safety laws and regulations, and Homology may become exposed to liability and substantial expenses in connection with environmental compliance or remediation activities.

Homology's operations are subject to numerous environmental, health and safety laws and regulations. These laws and regulations govern, among other things, the controlled use, handling, release and disposal of and the maintenance of a registry for, hazardous materials and biological materials, such as chemical solvents, human cells, carcinogenic compounds, mutagenic compounds and compounds that have a toxic effect on reproduction, laboratory procedures and exposure to blood-borne pathogens. If Homology fails to comply with such laws and regulations, it could be subject to fines or other sanctions.

As with other companies engaged in activities similar to Homology's, Homology faces a risk of environmental liability inherent in its current and historical activities, including liability relating to releases of or exposure to hazardous or biological materials. Environmental, health and safety laws and regulations are becoming more stringent. Homology may be required to incur substantial expenses in connection with future environmental compliance or remediation activities, in which case, the production efforts of Homology's third-party manufacturers or its development efforts may be interrupted or delayed.

Homology is currently subject to securities class action litigation and may be subject to similar or other litigation in the future, which will require significant management time and attention, result in significant legal expenses and may result in unfavorable outcomes, which may have a material adverse effect on Homology's business, operating results and financial condition, and negatively affect the price of Homology's common stock.

Homology is, and may in the future become, subject to various legal proceedings and claims that arise in or outside the ordinary course of business. In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for Homology because biopharmaceutical companies have experienced significant stock price volatility in recent years. For example, on March 25, 2022, a stockholder of Homology, Michael C. Pizzuto, filed a putative class action complaint alleging violations of Sections 10(b) and 20(a) of the Securities Exchange Act of 1934, as amended, against Homology and certain of its executives. *Pizzuto v. Homology Medicines, Inc.*, No. 2:22– CV – 01968 (C.D. Cal 2022). The complaint alleges that Homology failed to disclose certain information regarding efficacy and safety in connection with a Phase 1/2 HMI-102 clinical trial, and seeks damages in an unspecified amount. Homology filed a motion to transfer the case to the United States District Court for the District of Massachusetts on September 2, 2022, and a motion to dismiss on October 17, 2022. On April 18, 2023, the court granted the motion to transfer, finding that venue was not proper in the Central District of California and transferring the case to the District of Massachusetts. Following the transfer, the case number changed to 1:23-cv-10858-AK (D. Mass.). On May 9, 2023, the Massachusetts court issued an order permitting the parties to submit updated briefs in connection with the motion to dismiss, which were submitted on June 8, 2023, July 13, 2023, and August 3, 2023. The motion to dismiss remains pending.

The results of the securities class action lawsuit and any future legal proceedings cannot be predicted with certainty. Also, Homology's insurance coverage may be insufficient and any amounts not covered by insurance will be borne by the combined company. Furthermore, Homology's assets may be insufficient to cover any amounts that exceed its insurance coverage, and it may have to pay damage awards or otherwise may enter into settlement arrangements in connection with such claims. Damage awards and settlement payments will not impact CVR payments under the CVR Agreement, as long as the combined company has sufficient funds available to fund all of its payment obligations. The CVRs will be unsecured obligations of the combined company and all payments under the CVRs, all other obligations under the CVR Agreement and the CVRs and any rights or claims relating thereto may be subordinated in right of payment to the prior payment in full of all current or future senior obligations of the combined company.

Any such damage awards or settlement arrangements in current or future litigation could have a material adverse effect on Homology's business, operating results or financial condition. Even if the plaintiffs' claims are not successful, current or future litigation could result in substantial costs and significantly and adversely impact Homology's reputation and divert management's attention and resources, which could have a material adverse effect on its business, operating results and financial condition, and negatively affect the price of its common stock. In addition, such lawsuits may make it more difficult to finance Homology's operations.

Risks Related to Commercialization

Should Homology resume development of its product candidates, it faces significant competition in an environment of rapid technological change, and there is a possibility that Homology's competitors may achieve regulatory approval before it or develop therapies that are safer or more advanced or effective than Homology's, which may harm its financial condition and its ability to successfully market or commercialize any product candidates it may develop.

The development and commercialization of new genetic medicine products is highly competitive. Moreover, the gene editing field is characterized by rapidly changing technologies, significant competition, and a strong emphasis on intellectual property. Should Homology resume development of its product candidates, it will face competition with respect to any product candidates that it may seek to develop or commercialize from major pharmaceutical companies, specialty pharmaceutical companies, and biotechnology companies worldwide. Potential competitors also include academic institutions, government agencies, and other public and private research organizations that conduct research, seek patent protection, and establish collaborative arrangements for research, development, manufacturing, and commercialization.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of products for the treatment of the disease indications for which Homology has research programs, including PKU, MLD, Hunter syndrome, hemoglobinopathies and ophthalmological diseases. Some of these competitive products and therapies are based on scientific approaches that are similar to Homology's approach, and others are based on entirely different approaches.

Historically, Homology's platform and product focus has been the development of genetic medicines using its proprietary AAVHSCs *in vivo* through a nuclease-free gene editing modality, gene therapy, or GTx-mAb, which is designed to produce antibodies throughout the body. Should Homology resume development of such programs, and if Homology's former programs were to be approved for the indications for which Homology had been conducting clinical trials, they may compete with other products under development, including gene editing and gene therapy products or other types of therapies, such as small molecule, antibody or protein therapies. If Homology's PKU treatments are approved, they may compete with therapies from American Gene Technologies, BioMarin, Censa Pharmaceuticals, Generation Bio, Nestlé Health Science, Sangamo Therapeutics and Synlogic. However, Homology believes that only gene therapy or gene editing approaches have the potential to restore the normal Phe biochemical pathway with a single administration. If Homology's Hunter syndrome treatment is approved, it may compete with therapies from Shire and/or GC Pharma. If Homology's MLD treatment is approved, it may compete with therapies from Orchard Therapeutics, Passage Bio and/or Shire. *In vivo* gene therapy approaches provide potential advantages over ex vivo approaches. There are a number of companies developing nuclease-based gene editing technologies using CRISPR/Cas9, TALENs, meganucleases, Mega-TALs and ZFNs, including but not limited to Beam Therapeutics, bluebird bio, Caribou Biosciences, Cellectis, CRISPR Therapeutics, Editas Medicine, Intellia Therapeutics, Precision BioSciences, Prime Therapeutics and Sangamo Therapeutics and non-nuclease-based technology, including LogicBio Therapeutics.

Many of Homology's current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products than Homology does. Homology has requested withdrawal or inactivation of its previously open INDs, so Homology is currently not progressing any product candidates through the development process. Mergers and acquisitions in the pharmaceutical, biotechnology, and gene therapy industries may result in even more resources being concentrated among a smaller number of Homology's competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with Homology in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, Homology's programs. Homology's commercial opportunities could be reduced or eliminated if its competitors develop and commercialize products that are

safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that Homology may develop or that would render any products that it may develop obsolete or non-competitive. Homology's competitors also may obtain FDA or other regulatory approval for their products more rapidly than Homology may obtain approval for its products, which could result in its competitors establishing a strong market position before Homology is able to enter the market. Additionally, technologies developed by Homology's competitors may render its potential product candidates uneconomic or obsolete, and Homology may not be successful in marketing any product candidates it may develop against competitors.

In addition, as a result of the expiration or successful challenge of Homology's patent rights, Homology could face more litigation with respect to the validity and/or scope of patents relating to its competitors' products. The availability of Homology's competitors' products could limit the demand, and the price Homology is able to charge, for any products that it may develop and commercialize.

Should Homology resume development of its product candidates, the successful commercialization of Homology's product candidates will depend in part on the extent to which governmental authorities and health insurers establish adequate coverage, reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for Homology's product candidates, if approved, could limit Homology's ability to market those products and decrease its ability to generate revenue.

The availability and adequacy of coverage and reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most patients to be able to afford prescription medications such as Homology's product candidates, assuming FDA or foreign authorities approval. Homology's ability to achieve acceptable levels of coverage and reimbursement for products by governmental authorities, private health insurers and other organizations will have an effect on Homology's ability to successfully commercialize its product candidates. Assuming Homology obtains coverage for its product candidates by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. Moreover, for drugs and biologics administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such products. Homology cannot be sure that coverage and reimbursement in the United States, the EU or elsewhere will be available for its product candidates or any product that it may develop, and any reimbursement that may become available may be decreased or eliminated in the future.

Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Third-party payors increasingly are challenging prices charged for pharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs or biologics when an equivalent generic drug, biosimilar or a less expensive therapy is available. It is possible that a third-party payor may consider Homology's product candidates as substitutable and only offer to reimburse patients for the less expensive product. Even if Homology shows improved efficacy or improved convenience of administration with its product candidates, pricing of existing third-party therapeutics may limit the amount Homology will be able to charge for its product candidates. These third-party payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that

are too low to enable Homology to realize an appropriate return on its investment in its product candidates. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. If reimbursement is not available or is available only at limited levels, Homology may not be able to successfully commercialize its product candidates, and may not be able to obtain a satisfactory financial return on its product candidates.

There is significant uncertainty related to the insurance coverage and reimbursement of newly-approved products. In the United States, third-party payors, including private and governmental payors, such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs and biologics will be covered. The Medicare and Medicaid programs increasingly are used as models in the United States for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs and biologics. Some third-party payors may require pre-approval of coverage for new or innovative devices or drug therapies before they will reimburse healthcare providers who use such therapies. Homology cannot predict at this time what third-party payors will decide with respect to the coverage and reimbursement for its product candidates.

No uniform policy for coverage and reimbursement for products exists among third-party payors in the United States. Therefore, coverage and reimbursement for products can differ significantly among third-party payors. As a result, the coverage determination process is often a time-consuming and costly process that will require Homology to provide scientific and clinical support for the use of its product candidates to each third-party payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Furthermore, rules and regulations regarding reimbursement change frequently, in some cases on short notice, and Homology believes that changes in these rules and regulations are likely.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and Homology believes the increasing emphasis on cost-containment initiatives in Europe and other countries have and will continue to put pressure on the pricing and usage of its product candidates. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that Homology is able to charge for its product candidates. Accordingly, in markets outside the United States, the reimbursement for Homology's product candidates may be reduced compared with the United States and may be insufficient to generate commercially-reasonable revenue and profits.

Even if a pharmaceutical product obtains a marketing authorization in the EU, there can be no assurance that reimbursement for such product will be secured on a timely basis or at all. Governments influence the price of medicinal products through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Member states are free to restrict the range of pharmaceutical products for which their national health insurance systems provide reimbursement, and to control the prices and reimbursement levels of pharmaceutical products for human use. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed to by the government. Member states may approve a specific price or level of reimbursement for the pharmaceutical product, or alternatively adopt a system of direct or indirect controls on the profitability of the company responsible for placing the pharmaceutical product on the market, including volume-based arrangements, caps and reference pricing mechanisms. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines but monitor and control company profits. The downward pressure on healthcare costs in general, particularly prescription medicines, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross border imports from low-priced markets exert a commercial pressure on pricing within a country.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for Homology's product candidates. Homology expects to experience pricing pressures in connection with the sale of its product candidates due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes.

Even if any of Homology's product candidates receives marketing approval in the future, it may fail to achieve market acceptance by physicians, patients, third-party payors or others in the medical community necessary for commercial success.

If any of Homology's product candidates receives marketing approval in the future, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. If it does not achieve an adequate level of acceptance, Homology may not generate significant product revenues or become profitable. The degree of market acceptance of Homology's product candidates, if approved for commercial sale, will depend on a number of factors, including but not limited to:

- the safety, efficacy and potential advantages compared to alternative treatments;
- effectiveness of sales and marketing efforts;
- the cost of treatment in relation to alternative treatments, including any similar generic treatments;
- Homology's ability to offer its products for sale at competitive prices;
- the convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support;
- the timing of market introduction of competitive products;
- the availability of third-party coverage and adequate reimbursement;
- product labeling or product insert requirements of the FDA, EMA or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling;
- the prevalence and severity of any side effects; and
- any restrictions on the use of Homology's product together with other medications.

Because Homology expects sales of its product candidates, if approved, to generate substantially all of its product revenues for a substantial period, the failure of this product to find market acceptance would harm its business and could require it to seek additional financing.

Should Homology resume development of its product candidates, if Homology is unable to establish sales, marketing and distribution capabilities either on Homology's own or in collaboration with third parties, Homology may not be successful in commercializing its product candidates, if approved. Moreover, provisions in Homology's agreements with Pfizer may inhibit Homology's ability to enter into future collaborations with third parties.

Homology does not have any infrastructure for the sales, marketing or distribution of its products, and the cost of establishing and maintaining such an organization may exceed the cost-effectiveness of doing so.

Should Homology resume development of its product candidates, there are significant expenses and risks involved with establishing its own sales, marketing and distribution capabilities, including Homology's ability to

hire, retain and appropriately incentivize qualified individuals, generate sufficient sales leads, provide adequate training to sales and marketing personnel, and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of Homology's internal sales, marketing and distribution capabilities could delay any product launch, which would adversely impact the commercialization of Homology's product candidates. Additionally, if the commercial launch of any of Homology's product candidates for which it recruits a sales force and establish marketing capabilities is delayed or does not occur for any reason, Homology would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and Homology's investment would be lost if it cannot retain or reposition its sales and marketing personnel.

Homology does not anticipate having the resources in the foreseeable future to allocate to the sales and marketing of its product candidates in certain markets overseas. Therefore, Homology's future sales in these markets will largely depend on its ability to enter into and maintain collaborative relationships for such capabilities, the collaborator's strategic interest in the product and such collaborator's ability to successfully market and sell the product. Homology intends to pursue collaborative arrangements regarding the sale and marketing of its product candidates, if approved, for certain markets overseas; however, Homology cannot assure that it will be able to establish or maintain such collaborative arrangements, or if able to do so, that they will have effective sales forces.

If Homology is unable to build its own sales force or negotiate a collaborative relationship for the commercialization of its product candidates, Homology may be forced to delay the potential commercialization of its product candidates or reduce the scope of its sales or marketing activities for its product candidates. If Homology elects to increase its expenditures to fund commercialization activities itself, it will need to obtain additional capital, which may not be available to it on acceptable terms, or at all. Homology could enter into arrangements with collaborative partners at an earlier stage than otherwise would be ideal and it may be required to relinquish rights to its product candidates or otherwise agree to terms unfavorable to it, any of which may have an adverse effect on its business, operating results and prospects.

If Homology is unable to establish adequate sales, marketing and distribution capabilities, either on its own or in collaboration with third parties, Homology will not be successful in commercializing its product candidates, and may not become profitable and may incur significant additional losses. Homology will be competing with many companies that currently have extensive and well-funded marketing and sales operations. Without an internal team or the support of a third party to perform marketing and sales functions, Homology may be unable to compete successfully against these more established companies.

If Homology obtains approval to commercialize any products outside of the United States, a variety of risks associated with international operations could materially adversely affect its business.

If any of Homology's product candidates are approved for commercialization, Homology may enter into agreements with third parties to market it in certain jurisdictions outside the United States. Homology expects that it will be subject to additional risks related to international pharmaceutical operations, including:

- different regulatory requirements for drug and biologic approvals and rules governing drug and biologic commercialization and country-specific regulations of gene therapies in foreign countries;
- complex and restrictive import/export regulations;
- reduced protection for intellectual property rights;
- foreign reimbursement, pricing and insurance regimes;
- potential noncompliance with the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act 2010 and similar anti-bribery and anticorruption laws in other jurisdictions;

- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad;
- political and economic instability, including in light of international terrorism and conflicts;
- fluctuations in currency exchange rates; and
- higher costs of doing business internationally, including increased accounting, travel infrastructure and legal compliance costs.

Homology has no prior experience in these areas. In addition, there are complex regulatory, tax, labor and other legal requirements imposed by both the EU and many of the EU member states with which Homology will need to comply. Many U.S.-based biotechnology companies have found the process of marketing their own products in Europe to be very challenging.

In the future, any product candidates for which Homology may seek approval as biologic products may face competition sooner than anticipated.

The Patient Protection and Affordable Care Act, signed into law on March 23, 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty.

There is a risk that any of Homology's product candidates approved as a biological product under a BLA would not qualify for the 12-year period of exclusivity or that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider Homology's product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Jurisdictions in addition to the United States have established abbreviated pathways for regulatory approval of biological products that are biosimilar to earlier approved reference products. For example, the EU has had an established regulatory pathway for biosimilars since 2006. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of Homology's reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

Risks Related to Homology's Dependence on Third Parties

Homology has historically contracted with third parties, including Oxford Biomedica (US) LLC, for the manufacture of certain materials for its research programs, preclinical and clinical studies. This reliance on third parties increases the risk that Homology will not have sufficient quantities of such materials, product candidates, or any medicines that it may develop and commercialize, or that such supply will not be available to it at an acceptable cost or in compliance with regulatory requirements, which could delay, prevent, or impair its development or commercialization efforts if Homology were to resume such activities.

Homology has historically relied on third-party manufacturers for the manufacture of materials for research programs, preclinical and clinical studies. Homology do not have long-term supply agreements with all of the third-party manufacturers, and Homology purchases its required supply on a purchase order basis. Furthermore,

the raw materials for Homology's product candidates are sourced, in some cases, from a single-source supplier. Should Homology resume development of its product candidates, if it were to experience an unexpected loss of supply of any of its product candidates or any of its future product candidates for any reason, whether as a result of manufacturing, supply or storage issues or otherwise, Homology could experience delays, disruptions, suspensions or terminations of, or be required to restart or repeat, any pending or ongoing clinical trials.

Homology may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms. Even if Homology is able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- the possible breach of the manufacturing agreement by the third party;
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for Homology;
- reliance on the third party for regulatory compliance, quality assurance, safety, and pharmacovigilance and related reporting;
- inability to meet Homology's drug specifications and quality requirements consistently;
- delay or inability to procure sufficient manufacturing capacity;
- issues related to scale-up of manufacturing;
- costs and validation of new equipment and facilities required for scale-up;
- reliance on single sources for drug components;
- lack of qualified backup suppliers for those components that are currently purchased from a sole or single-source supplier;
- misappropriation of proprietary information, including Homology's trade secrets and know-how;
- the mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or study drug or placebo not being properly identified;
- clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales;
- operations of Homology's third-party manufacturers or suppliers could be disrupted by conditions unrelated to its business or operations, including the bankruptcy of the manufacturer or supplier; and
- carrier disruptions or increased costs that are beyond Homology's control.

Homology does not have complete control over all aspects of the manufacturing process of, and is dependent on, its contract manufacturing partners for compliance with GMP regulations for manufacturing both active drug substances and finished drug products. Third-party manufacturers may not be able to comply with GMP regulations or similar regulatory requirements outside the United States. The failure of Homology's third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on Homology, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocations, seizures or recalls of product candidates or medicines, operating restrictions, and criminal prosecutions, any of which could significantly and adversely affect supplies of Homology's medicines and harm its business, financial condition, results of operations, and prospects.

Assuming Homology were to resume the development of product candidates, any medicines that Homology may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under GMP regulations and that might be capable of manufacturing for Homology. Any performance failure on the part of Homology's existing or future manufacturers could delay clinical development or marketing approval.

Homology's current and anticipated future dependence upon others for the manufacture of any product candidates it may develop or medicines may adversely affect its future profit margins and its ability to commercialize any medicines that receive marketing approval on a timely and competitive basis.

Should Homology resume development of its product candidates, it would rely on third parties to conduct, supervise and monitor its clinical trials. If those third parties did not successfully carry out their contractual duties, or if they performed in an unsatisfactory manner, it may harm Homology's business.

Should Homology resume development of its product candidates, it would rely on CROs and clinical trial sites to ensure the proper and timely conduct of its clinical trials, and expects to have limited influence over their actual performance.

Homology would rely upon CROs to monitor and manage data for its clinical programs, as well as the execution of future nonclinical studies. Homology's reliance on CROs for clinical development activities limits its control over these activities, but it would remain responsible for ensuring that each of its studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards and its reliance on the CROs would not relieve it of its regulatory responsibilities.

Homology and its CROs will be required to comply with GLP and GCP, which are regulations and guidelines enforced by the FDA and are also required by the competent authorities in the EU and comparable foreign regulatory authorities in the form of International Conference on Harmonization guidelines for any of Homology's product candidates that are in preclinical and clinical development. The Regulatory authorities enforce GCP through periodic inspections of trial sponsors, principal investigators and clinical trial sites. If Homology or its CROs fail to comply with GCP, the clinical data generated in Homology's clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require Homology to perform additional clinical trials before approving Homology's marketing applications. Homology cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of its clinical trials comply with GCP requirements. In addition, Homology's clinical trials must be conducted with product produced under GMP regulations. Accordingly, if Homology's CROs fail to comply with these regulations or fail to recruit a sufficient number of subjects, Homology may be required to repeat clinical trials, which would delay the regulatory approval process.

Homology's CROs will not be its employees, and Homology will not control whether or not they devote sufficient time and resources to Homology's future clinical and nonclinical programs. These CROs may also have relationships with other commercial entities, including Homology's competitors, for whom they may also be conducting clinical trials, or other product development activities which could harm Homology's competitive position. Homology faces the risk of potential unauthorized disclosure or misappropriation of its intellectual property by CROs, which may reduce its trade secret protection and allow its potential competitors to access and exploit its proprietary technology. If Homology's CROs do not successfully carry out their contractual duties or obligations or fail to meet expected deadlines, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to Homology's clinical protocols or regulatory requirements or for any other reasons, Homology's clinical trials may be extended, delayed or terminated, and it may not be able to obtain regulatory approval for, or successfully commercialize any product candidate that it develops. As a result, Homology's financial results and the commercial prospects for any product candidate that it develops would be harmed, its costs could increase, and its ability to generate revenues could be delayed.

If Homology's relationship with any CROs terminate, Homology may not be able to enter into arrangements with alternative CROs or do so on commercially reasonable terms. Switching or adding additional CROs involves substantial cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact Homology's ability to meet its desired clinical development timelines. Though Homology intends to carefully manage its relationships with its CROs, there can be no assurance that it will not encounter challenges or delays in the future or that these delays or challenges will not have an adverse impact on Homology's business, financial condition and prospects.

Should Homology resume development of its product candidates, Homology may collaborate with third parties for the development and commercialization of its product candidates in the future, but there are no assurances that Homology will succeed in establishing and maintaining such collaborative relationships, which may significantly limit its ability to develop and commercialize its product candidates successfully, if at all.

Should Homology resume development of its product candidates, Homology may seek collaborative relationships for the development and commercialization of its product candidates in the future should it resume such activities. Failure to obtain a collaborative relationship for any of Homology's product candidates may significantly impair the potential for the product candidate. Homology would also need to enter into collaborative relationships to provide funding to support its other research and development programs. The process of establishing and maintaining collaborative relationships is difficult, time-consuming and involves significant uncertainty, such as:

- a collaboration partner may shift its priorities and resources away from Homology's product candidates due to a change in business strategies, or a merger, acquisition, sale or downsizing;
- a collaboration partner may seek to renegotiate or terminate their relationships with Homology due to unsatisfactory clinical results, manufacturing issues, a change in business strategy, a change of control or other reasons;
- a collaboration partner may cease development in therapeutic areas which are the subject of Homology's strategic collaboration;
- a collaboration partner may not devote sufficient capital or resources towards Homology's product candidates;
- a collaboration partner may change the success criteria for a product candidate thereby delaying or ceasing development of such candidate;
- a significant delay in initiation of certain development activities by a collaboration partner will also delay payment of milestones tied to such activities, thereby impacting Homology's ability to fund its own activities;
- a collaboration partner could develop a product that competes, either directly or indirectly, with Homology's product candidate;
- a collaboration partner with commercialization obligations may not commit sufficient financial or human resources to the marketing, distribution or sale of a product;
- a collaboration partner with manufacturing responsibilities may encounter regulatory, resource or quality issues and be unable to meet demand requirements;
- a collaboration partner may terminate a strategic alliance;
- a dispute may arise between Homology and a partner concerning the research, development or commercialization of a product candidate resulting in a delay in milestones, royalty payments or termination of an alliance and possibly resulting in costly litigation or arbitration which may divert management attention and resources; and
- a partner may use Homology's products or technology in such a way as to invite litigation from a third party.

If any collaborator fails to fulfill its responsibilities in a timely manner, or at all, Homology's research, clinical development, manufacturing or commercialization efforts related to that collaboration could be delayed or terminated, or it may be necessary for Homology to assume responsibility for expenses or activities that would otherwise have been the responsibility of Homology's collaborator. If Homology is unable to establish and maintain collaborative relationships on acceptable terms or to successfully transition terminated collaborative agreements, it may have to delay or discontinue further development of one or more of its product candidates, undertake development and commercialization activities at its own expense or find alternative sources of capital.

Moreover, any collaborative partners Homology enters into agreements with in the future may shift their priorities and resources away from Homology's product candidates or seek to renegotiate or terminate their relationships with Homology.

If Homology fails to comply with its obligations in the agreements under which it in-licenses or acquires development or commercialization rights to products, technology or data from third parties, Homology could lose such rights that are important to its business.

Homology is a party to agreements with COH for certain AAV vector-related patents and know-how, and Homology may enter into additional agreements, including license agreements, with other parties in the future that impose diligence, development and commercialization timelines, milestone payments, royalties, insurance and other obligations on Homology.

If Homology fails to comply with its obligations under the COH license, or any of Homology's other collaborators, Homology's counterparties may have the right to terminate these agreements, in which event Homology might not be able to develop, manufacture or market any product candidate that is covered by these agreements, which could materially adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of Homology's rights under these agreements may result in Homology having to negotiate new or reinstated agreements with less favorable terms, or cause Homology to lose its rights under these agreements, including its rights to important intellectual property or technology.

Risks Related to Homology's Intellectual Property

If Homology is unable to obtain and maintain patent protection for its technology and products or if the scope of the patent protection obtained is not sufficiently broad, Homology may not be able to compete effectively in its markets.

Homology relies upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to its proprietary technologies, product candidate development programs and product candidates. Homology's success depends in large part on its ability to secure and maintain patent protection in the United States and other countries with respect to all current and future product candidates. Homology seeks to protect its proprietary position by filing or collaborating with its licensors to file patent applications in the United States and abroad related to its proprietary technologies, development programs and product candidates. The patent prosecution process is expensive and time-consuming, and Homology may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner.

It is also possible that Homology will fail to identify patentable aspects of its research and development output before it is too late to obtain patent protection. The patent applications that Homology owns or in-licenses may fail to result in issued patents with claims that cover Homology's proprietary products and technology, including its product candidates in the United States or in other foreign countries, in whole or in part. Alternately, Homology's existing patents and any future patents Homology obtains may not be sufficiently broad to prevent others from using its technology or from developing competing products and technologies. There is no assurance that all potentially relevant prior art relating to Homology's patents and patent applications has been found, which can prevent a patent from issuing from a pending patent application or later invalidate or narrow the scope of an issued patent. Even if patents do successfully issue and even if such patents cover Homology's former product candidates or any future product candidate, third parties may challenge their validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful challenge to these patents or any other patents owned by or licensed to Homology could deprive Homology of rights necessary for the successful commercialization of any product candidates or companion diagnostic that it may develop. Further, if Homology encounters delays in regulatory approvals, the period of time during which it could market a product candidate and companion diagnostic under patent protection could be reduced.

If the patent applications Homology holds or has in-licensed with respect to its development programs and product candidates fail to issue, if their validity, breadth or strength of protection is threatened, or if they fail to provide meaningful exclusivity for Homology's former product candidates or any future product candidate, it could dissuade companies from collaborating with Homology to develop product candidates, encourage competitors to develop competing products or technologies and threaten Homology's ability to commercialize future product candidates. Any such outcome could have a materially adverse effect on Homology's business.

The patent position of biotechnology and pharmaceutical companies is highly uncertain, involves complex legal and factual questions, and is characterized by the existence of large numbers of patents and frequent litigation based on allegations of patent or other intellectual property infringement or violation. In addition, the laws of jurisdictions outside the United States may not protect Homology's rights to the same extent as the laws of the United States. For example, European patent law restricts the patentability of methods of treatment of the human body more than United States law does. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of Homology's patents or narrow the scope of its patent protection. Since patent applications in the United States and other jurisdictions are confidential for a period of time after filing, Homology cannot be certain that it was the first to file for patents covering its inventions. As a result, the issuance, scope, validity, enforceability and commercial value of Homology's patent rights are highly uncertain. Homology's pending and future patent applications may not result in the issuance of patents, or may result in the issuance of patents which fail to protect Homology's technology or products, in whole or in part, or which fail to effectively prevent others from commercializing competitive technologies and products.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and Homology's owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit Homology's ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of Homology's technology and products. Thus, even if Homology's patent applications issue as patents, they may not issue in a form that will provide Homology with meaningful protection, prevent competitors from competing with Homology or otherwise provide Homology with any competitive advantage. Moreover, patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after it is filed. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Without patent protection for Homology's current or future product candidates, Homology may be open to competition from generic versions of such products. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, Homology's owned and licensed patent portfolio may not provide Homology with sufficient rights to exclude others from commercializing products similar or identical to Homology's.

Third parties may assert claims against Homology alleging infringement of their patents and proprietary rights, or Homology may need to become involved in lawsuits to defend or enforce its patents, either of which could result in substantial costs or loss of productivity, delay or prevent the development and commercialization of its product candidates, prohibit its use of proprietary technology or sale of products or put its patents and other proprietary rights at risk.

Homology's commercial success depends, in part, upon its ability to develop, manufacture, market and sell its product candidates without alleged or actual infringement, misappropriation or other violation of the patents and proprietary rights of third parties. Litigation relating to infringement or misappropriation of patent and other intellectual property rights in the pharmaceutical and biotechnology industries is common, including patent infringement lawsuits, interferences, oppositions and reexamination proceedings before the U.S. Patent and Trademark Office, or USPTO, and corresponding foreign patent offices. The various markets in which Homology plans to operate are subject to frequent and extensive litigation regarding patents and other intellectual

property rights. In addition, many companies in intellectual property-dependent industries, including the biotechnology and pharmaceutical industries, have employed intellectual property litigation as a means to gain an advantage over their competitors. Numerous United States, EU and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which Homology is developing product candidates, and as the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that Homology's product candidates may be subject to claims of infringement of the intellectual property rights of third parties. Some claimants may have substantially greater resources than Homology does and may be able to sustain the costs of complex intellectual property litigation to a greater degree and for longer periods of time than Homology could. In addition, patent holding companies that focus solely on extracting royalties and settlements by enforcing patent rights may target Homology.

Homology may be subject to third-party claims including infringement, interference or derivation proceedings, post-grant review and inter partes review before the USPTO or similar adversarial proceedings or litigation in other jurisdictions. Even if such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, and the holders of any such patents may be able to block Homology's ability to commercialize the applicable product candidate unless Homology obtained a license under the applicable patents, or until such patents expire or are finally determined to be invalid or unenforceable. Similarly, if any third-party patents were held by a court of competent jurisdiction to cover aspects of Homology's compositions, formulations, or methods of treatment, prevention or use, the holders of any such patents may be able to prohibit Homology's use of those compositions, formulations, methods of treatment, prevention or use or other technologies, effectively blocking its ability to develop and commercialize the applicable product candidate until such patent expires or is finally determined to be invalid or unenforceable or unless Homology obtained a license.

In addition, defending such claims would cause Homology to incur substantial expenses and, if successful, could cause Homology to pay substantial damages if Homology is found to be infringing a third party's patent rights. These damages potentially include increased damages and attorneys' fees if Homology is found to have infringed such rights willfully. Further, if a patent infringement suit is brought against Homology or its third-party service providers, its development, manufacturing or sales activities relating to the product or product candidate that is the subject of the suit may be delayed or terminated. As a result of patent infringement claims, or in order to avoid potential infringement claims, Homology may choose to seek, or be required to seek, a license from the third party, which may require payment of substantial royalties or fees, or require Homology to grant a cross-license under its intellectual property rights. These licenses may not be available on reasonable terms or at all. Even if a license can be obtained on reasonable terms, the rights may be nonexclusive, which would give Homology's competitors access to the same intellectual property rights. If Homology is unable to enter into a license on acceptable terms, it could be prevented from commercializing one or more of its product candidates, or forced to modify such product candidates, or to cease some aspect of its business operations, which could harm Homology's business significantly. Homology might also be forced to redesign or modify its product candidates so that it no longer infringes the third-party intellectual property rights, which may result in significant cost or delay to Homology, or which redesign or modification could be impossible or technically infeasible. Even if Homology were ultimately to prevail, any of these events could require it to divert substantial financial and management resources that it would otherwise be able to devote to its business. In addition, if the breadth or strength of protection provided the patents and patent applications Homology owns or in-licenses is threatened, it could dissuade companies from collaborating with Homology to license, develop or commercialize current or future product candidates.

If Homology or one of its licensors were to initiate legal proceedings against a third party to enforce a patent covering one of Homology's product candidates, the defendant could counterclaim that Homology's patent is invalid or unenforceable. In patent litigation in the United States and in Europe, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Third parties might allege unenforceability of Homology's patents because during prosecution of the patent an

individual connected with such prosecution withheld relevant information, or made a misleading statement. The outcome of proceedings involving assertions of invalidity and unenforceability during patent litigation is unpredictable. With respect to the validity of patents, for example, Homology cannot be certain that there is no invalidating prior art of which Homology and the patent examiner were unaware during prosecution, but that an adverse third party may identify and submit in support of such assertions of invalidity. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, Homology would lose at least part, and perhaps all, of the patent protection on its product candidates. Homology's patents and other intellectual property rights also will not protect its technology if competitors design around Homology's protected technology without infringing its patents or other intellectual property rights.

Even if resolved in Homology's favor, litigation or other legal proceedings relating to intellectual property claims may cause Homology to incur significant expenses and could distract its technical and management personnel from their normal responsibilities. In addition, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of Homology's confidential information could be compromised by disclosure during this type of litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors view these announcements in a negative light, the price of Homology's common stock could be adversely affected. Such litigation or proceedings could substantially increase Homology's operating losses and reduce Homology's resources available for development activities. Homology may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of Homology's competitors may be able to sustain the costs of such litigation or proceedings more effectively than Homology can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have an adverse effect on Homology's ability to compete in the marketplace.

Homology may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent which might adversely affect Homology's ability to develop, manufacture and market its product candidates.

Homology cannot guarantee that any of its or its licensors' patent searches or analyses, including but not limited to the identification of relevant patents, analysis of the scope of relevant patent claims or determination of the expiration of relevant patents, are complete or thorough, nor can Homology be certain that it has identified each and every third-party patent and pending application in the United States, Europe and elsewhere that is relevant to or necessary for the commercialization of its product candidates in any jurisdiction. For example, in the United States, applications filed before November 29, 2000 and certain applications filed after that date that will not be filed outside the United States remain confidential until patents issue. Patent applications in the United States, EU and elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering Homology's product candidates could be filed by others without Homology's knowledge. Additionally, pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover Homology's product candidates or the use of Homology's product candidates. After issuance, the scope of patent claims remains subject to construction as determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Homology's interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact Homology's ability to market its product candidates. Homology may incorrectly determine that its product candidates are not covered by a third-party patent or may incorrectly predict whether a third party's pending application will issue with claims of relevant scope. Homology's determination of the expiration date of any patent in the United States, the EU or elsewhere that Homology considers relevant may be incorrect, which may negatively impact its ability to develop and market its product candidates. Homology's failure to identify and correctly interpret relevant patents may negatively impact its ability to develop and market its product candidates.

If Homology fails to correctly identify or interpret relevant patents, Homology may be subject to infringement claims. Homology cannot guarantee that it will be able to successfully settle or otherwise resolve such infringement claims. If Homology fails in any such dispute, in addition to being forced to pay monetary damages, Homology may be temporarily or permanently prohibited from commercializing its product candidates. Homology might, if possible, also be forced to redesign its product candidates in a manner that no longer infringes third-party intellectual property rights. Any of these events, even if Homology were ultimately to prevail, could require it to divert substantial financial and management resources that it would otherwise be able to devote to its business.

Changes in patent laws or patent jurisprudence could diminish the value of patents in general, thereby impairing Homology's ability to protect its product candidates.

As is the case with other biotechnology companies, Homology's success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biotechnology and genetic medicines industries involve both technological complexity and legal complexity. Therefore, obtaining and enforcing biotechnology and genetic medicines patents is costly, time-consuming and inherently uncertain. In addition, the America Invents Act, or the AIA, which was passed in September 2011, resulted in significant changes to the U.S. patent system.

An important change introduced by the AIA is that, as of March 16, 2013, the United States transitioned from a "first-to-invent" to a "first-to-file" system for deciding which party should be granted a patent when two or more patent applications are filed by different parties claiming the same invention. Under a "first-to-file" system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on the invention regardless of whether another inventor had made the invention earlier. A third party that files a patent application in the USPTO after that date but before Homology could therefore be awarded a patent covering an invention of Homology's even if Homology made the invention before it was made by the third party. This will require Homology to be cognizant going forward of the time from invention to filing of a patent application and diligent in filing patent applications, but circumstances could prevent Homology from promptly filing patent applications on Homology's inventions.

Among some of the other changes introduced by the AIA are changes that limit where a patentee may file a patent infringement suit and providing opportunities for third parties to challenge any issued patent in the USPTO. This applies to all of Homology's U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings as compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action.

Accordingly, a third party may attempt to use the USPTO procedures to invalidate Homology's patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. It is not clear what, if any, impact the AIA will have on the operation of Homology's business. However, the AIA and its implementation could increase the uncertainties and costs surrounding the prosecution of Homology's or its licensors' patent applications and the enforcement or defense of Homology's or its licensors' issued patents.

Homology may become involved in opposition, interference, derivation, inter partes review or other proceedings challenging Homology's or its licensors' patent rights, and the outcome of any proceedings are highly uncertain. An adverse determination in any such proceeding could reduce the scope of, or invalidate, Homology's owned or in-licensed patent rights, allow third parties to commercialize Homology's technology or products and compete directly with Homology, without payment to Homology, or result in Homology's inability to manufacture or commercialize products without infringing third-party patent rights.

Additionally, the U.S. Supreme Court has ruled on several patent cases in recent years either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations, and there are other open questions under patent law that courts have yet to decisively address. In addition to increasing uncertainty with regard to Homology's ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways and could weaken Homology's ability to obtain new patents or to enforce its existing patents and patents that it might obtain in the future. In addition, the European patent system is relatively stringent in the type of amendments that are allowed during prosecution, but, the complexity and uncertainty of European patent laws has also increased in recent years. Complying with these laws and regulations could limit Homology's ability to obtain new patents in the future that may be important for its business.

Obtaining and maintaining Homology's patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and Homology's patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and European and other patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. In addition, periodic maintenance and annuity fees on any issued patent are due to be paid to the USPTO and European and other patent agencies over the lifetime of a patent. While an inadvertent failure to make payment of such fees or to comply with such provisions can in many cases be cured by additional payment of a late fee or by other means in accordance with the applicable rules, there are situations in which non-compliance with such provisions will result in the abandonment or lapse of the patent or patent application, and the partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents within prescribed time limits. If Homology or its licensors fail to maintain the patents and patent applications covering Homology's product candidates or if Homology or its licensors otherwise allow Homology's patents or patent applications to be abandoned or lapse, it can create opportunities for competitors to enter the market, which would hurt Homology's competitive position and could impair its ability to successfully commercialize its product candidates in any indication for which they are approved.

Homology enjoys only limited geographical protection with respect to certain patents and Homology may not be able to protect its intellectual property rights throughout the world.

Filing, prosecuting and defending patents covering Homology's product candidates in all countries throughout the world would be prohibitively expensive, and Homology's intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In-licensing patents covering Homology's product candidates in all countries throughout the world may similarly be prohibitively expensive, if such opportunities are available at all. And in-licensing or filing, prosecuting and defending patents even in only those jurisdictions in which Homology develops or commercializes its product candidates may be prohibitively expensive or impractical. Competitors may use Homology's and its licensors' technologies in jurisdictions where Homology has not obtained patent protection or licensed patents to develop their own products and, further, may export otherwise infringing products to territories where Homology and its licensors have patent protection, but enforcement is not as strong as that in the United States or the EU. These products may compete with Homology's product candidates, and Homology's or its licensors' patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

In addition, Homology intends to abandon certain national and regional patent applications while they are still pending. The grant proceeding of each national or regional patent is an independent proceeding which may lead to situations in which applications may be rejected by the relevant patent office, while substantively similar applications are granted by others. For example, relative to other countries, China has a heightened requirement

for patentability and specifically requires a detailed description of medical uses of a claimed drug. Furthermore, generic drug manufacturers or other competitors may challenge the scope, validity or enforceability of Homology's or its licensors' patents, requiring Homology or its licensors to engage in complex, lengthy and costly litigation or other proceedings. Generic drug manufacturers may develop, seek approval for and launch generic versions of Homology's products. It is also quite common that depending on the country, the scope of patent protection may vary for the same product candidate or technology.

The laws of some jurisdictions do not protect intellectual property rights to the same extent as the laws or regulations in the United States and the EU, and many companies have encountered significant difficulties in protecting and defending proprietary rights in such jurisdictions. Moreover, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets or other forms of intellectual property, which could make it difficult for Homology to prevent competitors in some jurisdictions from marketing competing products in violation of its proprietary rights generally. Proceedings to enforce Homology's patent rights in foreign jurisdictions, whether or not successful, are likely to result in substantial costs and divert Homology's efforts and attention from other aspects of its business, and additionally could put at risk Homology's or its licensors' patents of being invalidated or interpreted narrowly, could increase the risk of Homology's or its licensors' patent applications not issuing, or could provoke third parties to assert claims against Homology. Homology may not prevail in any lawsuits that it initiates, while damages or other remedies may be awarded to the adverse party, which may be commercially significant. If Homology prevails, damages or other remedies awarded to Homology, if any, may not be commercially meaningful. Accordingly, Homology's efforts to enforce its intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that Homology develops or licenses. Furthermore, while Homology intends to protect its intellectual property rights in its expected significant markets, Homology cannot ensure that it will be able to initiate or maintain similar efforts in all jurisdictions in which it may wish to market its product candidates. Accordingly, Homology's efforts to protect its intellectual property rights in such countries may be inadequate, which may have an adverse effect on Homology's ability to successfully commercialize its product candidates in all of its expected significant foreign markets. If Homology or its licensors encounter difficulties in protecting, or are otherwise precluded from effectively protecting, the intellectual property rights important for Homology's business in such jurisdictions, the value of these rights may be diminished and Homology may face additional competition in those jurisdictions.

In some jurisdictions, compulsory licensing laws compel patent owners to grant licenses to third parties. In addition, some countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If Homology or any of its licensors are forced to grant a license to third parties under patents relevant to Homology's business, or if Homology or its licensors are prevented from enforcing patent rights against third parties, Homology's competitive position may be substantially impaired in such jurisdictions.

If Homology does not obtain patent term extension in the United States under the Hatch-Waxman Act and in foreign countries under similar legislation, thereby potentially extending the term of marketing exclusivity for its product candidates, its business may be materially harmed.

The term of any individual patent depends on applicable law in the country where the patent is granted. In the United States, provided all maintenance fees are timely paid, a patent generally has a term of 20 years from its application filing date or earliest claimed non-provisional filing date. Extensions may be available under certain circumstances, but the life of a patent and, correspondingly, the protection it affords is limited. Even if Homology or its licensors obtain patents covering Homology's product candidates, when the terms of all patents covering a product expire, Homology's business may become subject to competition from competitive medications, including generic medications. Given the amount of time required for the development, testing and regulatory review and approval of new product candidates, patents protecting such candidates may expire before or shortly after such candidates are commercialized. As a result, Homology's owned and licensed patent portfolio may not provide Homology with sufficient rights to exclude others from commercializing products similar or identical to Homology's.

In the United States, a patent that covers an FDA-approved drug or biologic may be eligible for a term extension designed to restore the period of the patent term that is lost during the premarket regulatory review process conducted by the FDA. Depending upon the timing, duration and conditions of FDA marketing approval of Homology's product candidates, one or more of Homology's U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, which permits a patent term extension of up to five years for a patent covering an approved product as compensation for effective patent term lost during product development and the FDA regulatory review process. In the EU, Homology's product candidates may be eligible for term extensions based on similar legislation. In either jurisdiction, however, Homology may not receive an extension if it fails to apply within applicable deadlines, fails to apply prior to expiration of relevant patents or otherwise fails to satisfy applicable requirements. Even if Homology is granted such extension, the duration of such extension may be less than Homology's request. If Homology is unable to obtain a patent term extension, or if the term of any such extension is less than Homology's request, the period during which Homology can enforce its patent rights for that product will be in effect shortened and its competitors may obtain approval to market competing products sooner. The resulting reduction of years of revenue from applicable products could be substantial.

Homology's proprietary rights may not adequately protect its technologies and product candidates, and do not necessarily address all potential threats to its competitive advantage.

The degree of future protection afforded by Homology's intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect Homology's business, or permit Homology to maintain its competitive advantage. The following examples are illustrative:

- others may be able to make products that are the same as or similar to Homology's product candidates but that are not covered by the claims of the patents that Homology owns or has exclusively licensed;
- others, including inventors or developers of Homology's owned or in-licensed patented technologies who may become involved with competitors, may independently develop similar technologies that function as alternatives or replacements for any of Homology's technologies without infringing Homology's intellectual property rights;
- Homology or its licensors or Homology's other collaboration partners might not have been the first to conceive and reduce to practice the inventions covered by the patents or patent applications that Homology owns, licenses or will own or license;
- Homology or its licensors or Homology's other collaboration partners might not have been the first to file patent applications covering certain of the patents or patent applications that Homology or they own or have obtained a license, or will own or will have obtained a license;
- Homology or its licensors may fail to meet obligations to the U.S. government with respect to in-licensed patents and patent applications funded by U.S. government grants, leading to the loss of patent rights;
- it is possible that Homology's pending patent applications will not result in issued patents;
- it is possible that there are prior public disclosures that could invalidate Homology's or its licensors' patents;
- issued patents that Homology owns or exclusively licenses may not provide Homology with any competitive advantage, or may be held invalid or unenforceable, as a result of legal challenges by its competitors;
- Homology's competitors might conduct research and development activities in countries where Homology does not have patent rights, or in countries where research and development safe harbor laws exist, and then use the information learned from such activities to develop competitive products for sale in Homology's major commercial markets;

- ownership, validity or enforceability of Homology's or its licensors' patents or patent applications may be challenged by third parties; and
- the patents of third parties or pending or future applications of third parties, if issued, may have an adverse effect on Homology's business.

Homology depends on proprietary technology licensed from others. If Homology loses its existing licenses or is unable to acquire or license additional proprietary rights from third parties, Homology may not be able to continue developing its products.

Homology currently in-licenses certain intellectual property from COH. In the future Homology may in-license intellectual property from other licensors. Homology relies on certain of these licensors to file and prosecute patent applications and maintain patents and otherwise protect the intellectual property Homology licenses from them. Homology has limited control over these activities or any other intellectual property that may be related to Homology's in-licensed intellectual property. For example, Homology cannot be certain that such activities by these licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. Homology has limited control over the manner in which its licensors initiate an infringement proceeding against a third-party infringer of the intellectual property rights, or defend certain of the intellectual property that is licensed to Homology. It is possible that the licensors' infringement proceeding or defense activities may be less vigorous than had Homology conducted them itself. The licensing and acquisition of third-party intellectual property rights is a competitive practice, and companies that may be more established, or have greater resources than Homology does, may also be pursuing strategies to license or acquire third-party intellectual property rights that Homology may consider necessary or attractive in order to commercialize its product candidates. More established companies may have a competitive advantage over Homology due to their larger size and cash resources or greater clinical development and commercialization capabilities. There can be no assurance that Homology will be able to successfully complete such negotiations and ultimately acquire the rights to the intellectual property surrounding the additional product candidates that Homology may seek to acquire.

If Homology fails to comply with its obligations under its patent licenses with third parties, Homology could lose license rights that are important to its business.

Homology is a party to license agreements with COH, pursuant to which Homology in-licenses patents and technology for its product candidates. This existing license imposes various diligence, milestone payment, royalty, insurance and other obligations on Homology. If Homology fails to comply with these obligations or otherwise materially breaches a license agreement, Homology's licensors may have the right to terminate the license, in which event Homology would not be able to develop or market the products covered by such licensed intellectual property. In addition, any claims asserted against Homology by its licensors may be costly and time-consuming, divert the attention of key personnel from business operations or otherwise have a material adverse effect on its business.

Homology's reliance on third parties may require it to share its trade secrets, which increases the possibility that Homology's trade secrets will be misappropriated or disclosed, and confidentiality agreements with employees and third parties may not adequately prevent disclosure of trade secrets and protect other proprietary information.

Homology considers proprietary trade secrets, confidential know-how and unpatented know-how to be important to its business. Homology may rely on trade secrets and confidential know-how to protect its technology, especially where patent protection is believed by Homology to be of limited value. However, trade secrets and confidential know-how are difficult to protect, and Homology has limited control over the protection of trade secrets and confidential know-how used by its licensors, collaborators and suppliers. Because Homology expects to rely on third parties to manufacture its current and future product candidates, and Homology expects

to collaborate with third parties on the development of its current and future product candidates, Homology may, at times, share trade secrets with them. Homology also conducts joint research and development programs that may require it to share trade secrets under the terms of its research and development collaborations or similar agreements. Under such circumstances, trade secrets and confidential know-how can be difficult to maintain as confidential.

To protect this type of information against disclosure or appropriation by competitors, Homology's policy is to require its employees, consultants, contractors and advisors to enter into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with Homology prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose Homology's confidential information, including its trade secrets. However, current or former employees, consultants, contractors and advisers may unintentionally or willfully disclose Homology's confidential information to competitors, and confidentiality agreements may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. The need to share trade secrets and other confidential information increases the risk that such trade secrets become known by Homology's competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that Homology's competitive position is based, in part, on its know-how and trade secrets, a competitor's discovery of Homology's trade secrets or other unauthorized use or disclosure would impair Homology's competitive position and may have an adverse effect on Homology's business and results of operations. Enforcing a claim that a third party obtained illegally and is using trade secrets and/or confidential know-how is expensive, time consuming and unpredictable, and the enforceability of confidentiality agreements may vary from jurisdiction to jurisdiction.

In addition, these agreements typically restrict the ability of Homology's advisors, employees, third-party contractors and consultants to publish data potentially relating to Homology's trade secrets, although Homology's agreements may contain certain limited publication rights. Despite Homology's efforts to protect its trade secrets, Homology's competitors may discover its trade secrets, either through breach of Homology's agreements with third parties, independent development or publication of information by any of Homology's third-party collaborators. A competitor's discovery of Homology's trade secrets would impair its competitive position and have an adverse impact on its business.

If Homology's trademarks and trade names are not adequately protected, then Homology may not be able to build name recognition in its markets of interest and its business may be adversely affected.

If Homology's trademarks and trade names are not adequately protected, then Homology may not be able to build name recognition in its markets of interest and its business may be adversely affected. As of September 30, 2023, Homology owned four registered trademarks and one pending trademark applications in the United States, as well as 39 registered trademarks and five pending trademark applications in other countries around the world. Homology may not be able to protect its rights to these trademarks and trade names, which Homology needs to build name recognition among potential partners or customers in its markets of interest. At times, competitors may adopt trade names or trademarks similar to Homology's, thereby impeding Homology's ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of Homology's unregistered trademarks or trade names. Over the long term, if Homology is unable to successfully register its trademarks and trade names and establish name recognition based on its trademarks and trade names, then Homology may not be able to compete effectively and its business may be adversely affected. Homology's efforts to enforce or protect its proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely impact Homology's financial condition or results of operations.

Homology may be subject to claims that its employees, consultants or independent contractors have wrongfully used or disclosed confidential information of their former employers or other third parties.

Homology employs individuals who were previously employed at other biotechnology or pharmaceutical companies. Although Homology seeks to protect its ownership of intellectual property rights by ensuring that its agreements with its employees, collaborators and other third parties with whom it does business include provisions requiring such parties to assign rights in inventions to Homology, Homology may be subject to claims that it or its employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of Homology's employees' former employers or other third parties. Homology may also be subject to claims that former employers or other third parties have an ownership interest in Homology's patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if Homology fails in defending any such claims, in addition to paying monetary damages, Homology may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Even if Homology is successful, litigation could result in substantial cost and reputational loss and be a distraction to Homology's management and other employees.

Risks Related to Employee Matters and Other Risks Related to Homology's Business

Homology's recent reduction in force undertaken to significantly reduce Homology's ongoing operating expenses may not result in Homology's intended outcomes and may yield unintended consequences and additional costs.

In July 2023, Homology implemented a reduction in force affecting approximately 80 employees, or 86% of its workforce, in order to reduce its ongoing operating costs, extend its cash runway and maximize shareholder value as it considers strategic options. In connection with corporate restructuring, Homology recorded a restructuring charge for severance and related costs of $6.9 million in its condensed consolidated statements of operations included elsewhere in this proxy statement/prospectus during the three months ended September 30, 2023. In addition, Homology had previously granted certain of the terminated employees restricted stock units that vest in annual installments based on continued service to Homology, as well as options to purchase shares of Homology's common stock that typically vest over a period of four years. In connection with the reduction in workforce, Homology agreed to accelerate the vesting of a portion of the RSUs that were unvested as of the employees' termination dates, and also modify the stock options for terminated employees such that subject to the satisfaction of severance conditions, the terminated employees' vested options will remain outstanding and exercisable until the first anniversary of each employee's termination date. These equity modifications resulted in a net reduction to stock based compensation expense of $0.3 million reflected within restructuring and other charges in Homology's condensed consolidated statements of operations included elsewhere in this proxy statement/prospectus during the three months ended September 30, 2023.

The reduction in force may result in unintended consequences and additional costs, such as the loss of institutional knowledge and expertise, attrition beyond the intended number of employees, decreased morale among Homology's remaining employees, and the risk that Homology may not achieve the anticipated benefits of the reduction in force. In addition, while positions have been eliminated certain functions necessary to Homology's operations remain, and Homology may be unsuccessful in distributing the duties and obligations of departed employees among its remaining employees. The reduction in workforce could also make it difficult for Homology to pursue, or prevent Homology from pursuing, new opportunities and initiatives due to insufficient personnel, or require Homology to incur additional and unanticipated costs to hire new personnel to pursue such opportunities or initiatives. If Homology is unable to realize the anticipated benefits from the reduction in force, or if Homology experiences significant adverse consequences from the reduction in force, its business, financial condition, and results of operations may be materially adversely affected.

Homology's future success depends on its ability to retain its key personnel and to attract, retain and motivate qualified personnel.

Homology's industry has experienced a high rate of turnover of management personnel in recent years. Homology is highly dependent on the development, regulatory, commercialization and business development expertise of certain principal members of its management team. Although Homology has formal employment agreements with its executive officers, these agreements do not prevent them from terminating their employment with Homology at any time.

Homology or the third parties upon whom Homology depends may be adversely affected by natural disasters public health emergencies and other natural catastrophic events, and Homology's business continuity and disaster recovery plans may not adequately protect it from a serious disaster.

Natural disasters could severely disrupt Homology's operations and have a material adverse effect on Homology's business, results of operations, financial condition and prospects. If a natural disaster, public health emergency, such as the COVID-19 pandemic, power outage or other event occurred that prevented Homology from using all or a significant portion of its headquarters, that damaged critical infrastructure, such as its manufacturing facilities, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for Homology to continue its business for a substantial period of time. The disaster recovery and business continuity plans Homology has in place may prove inadequate in the event of a serious disaster or similar event. Homology may incur substantial expenses as a result of the limited nature of its disaster recovery and business continuity plans, which could have a material adverse effect on its business. For example, following Hurricane Maria, shortages in production and delays in a number of medical supplies produced in Puerto Rico resulted, and any similar interruption due to a natural disaster affecting Homology or any of Homology's third-party manufacturers could materially delay Homology's operations.

Risks Related to Homology's Common Stock

Homology's executive officers and directors and their respective affiliates, if they choose to act together, will continue to have the ability to control or significantly influence all matters submitted to stockholders for approval.

Homology's executive officers and directors and their respective affiliates, in the aggregate, held shares representing approximately 11% of its outstanding voting stock as of September 30, 2023. As a result, if these stockholders choose to act together, they would be able to control or significantly influence all matters submitted to Homology's stockholders for approval, as well as its management and affairs. For example, these persons, if they choose to act together, would control or significantly influence the election of directors, the composition of Homology's management and approval of any merger, consolidation or sale of all or substantially all of Homology's assets.

A significant portion of Homology's total outstanding shares are eligible, or will soon become eligible, to be sold into the market, which could cause the market price of Homology's common stock to drop significantly, even if Homology's business is doing well.

Sales of a substantial number of shares of Homology's common stock in the public market, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of Homology's common stock. Homology has registered all shares of common stock that it may issue under its equity compensation plans, which can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates.

Provisions in Homology's restated certificate of incorporation and amended and restated bylaws and under Delaware law could make an acquisition of Homology, which may be beneficial to Homology's stockholders, more difficult and may prevent attempts by Homology's stockholders to replace or remove its current management.

Provisions in Homology's restated certificate of incorporation and its amended and restated bylaws may discourage, delay or prevent a merger, acquisition or other change in control of Homology that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of Homology's common stock, thereby depressing the market price of Homology's common stock. In addition, because Homology's board of directors is responsible for appointing the members of its management team, these provisions may frustrate or prevent any attempts by Homology's stockholders to replace or remove its current management by making it more difficult for stockholders to replace members of its board of directors. Among other things, these provisions include those establishing:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of Homology's board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of Homology's board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from filling vacancies on Homology's board of directors;
- the ability of Homology's board of directors to authorize the issuance of shares of preferred stock and to determine the terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the ability of Homology's board of directors to alter its bylaws without obtaining stockholder approval;
- the required approval of the holders of at least two-thirds of the shares entitled to vote at an election of directors to adopt, amend or repeal Homology's bylaws or repeal the provisions of its restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of Homology's stockholders;
- the requirement that a special meeting of stockholders may be called only by the chairman of the board of directors, the chief executive officer, the president or the board of directors, which may delay the ability of Homology's stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to Homology's board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of Homology.

Moreover, because Homology is incorporated in Delaware, Homology is governed by the provisions of Section 203 of the General Corporation Law of the State of Delaware, which prohibits a person who owns in excess of 15% of Homology's outstanding voting stock from merging or combining with Homology for a period of three years after the date of the transaction in which the person acquired in excess of 15% of Homology's outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Homology's certificate of incorporation designates the Court of Chancery of the State of Delaware, subject to certain exceptions, as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by Homology's stockholders and Homology's bylaws designate the federal district courts of the United States as the exclusive forum for actions arising under the Securities Act of 1933, as amended, which could limit Homology's stockholders' ability to obtain a favorable judicial forum for disputes with Homology or its directors, officers or employees.

Homology's restated certificate of incorporation specifies that, unless Homology consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving claims brought against Homology by stockholders. In addition, Homology's bylaws provide that the federal district courts of the United States are the exclusive forum for any complaint raising a cause of action arising under the Securities Act of 1933, as amended. Any person or entity purchasing or otherwise acquiring any interest in shares of Homology's capital stock shall be deemed to have notice of and to have consented to the provisions of Homology's restated certificate of incorporation and bylaws described above.

Homology believes these choice of forum provisions benefit it by providing increased consistency in the application of Delaware law by chancellors particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, the provision may have the effect of discouraging lawsuits against Homology's directors, officers, employees and agents as it may limit any stockholder's ability to bring a claim in a judicial forum that such stockholder finds favorable for disputes with Homology or its directors, officers, employees or agents. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with any applicable action brought against Homology, a court could find the choice of forum provisions contained in Homology's restated certificate of incorporation or bylaws to be inapplicable or unenforceable in such action. If a court were to find the choice of forum provisions contained in Homology's restated certificate of incorporation or bylaws to be inapplicable or unenforceable in an action, Homology may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect its business, financial condition or results of operations.

Homology's ability to use net operating losses and research and development credits to offset future taxable income or income tax liabilities may be subject to certain limitations.

As of December 31, 2022, Homology had federal and state net operating loss carryforwards, or NOLs, of approximately $283.5 million and $272.1 million, respectively. Homology's state NOLs, and federal NOLs generated in taxable years beginning before January 1, 2018, are subject to expiration and will expire at various dates through 2041. Federal NOLs generated in taxable periods beginning after December 31, 2017 may be carried forward indefinitely but may only be used to offset 80% of Homology's taxable income in taxable years beginning after December 31, 2020, which may require Homology to pay federal income taxes in future years despite generating federal NOLs in prior years. As of December 31, 2022, Homology also had federal and state research and development and other tax credit carryforwards, or credits, including the orphan drug credit, of approximately $55.1 million and $14.8 million, respectively, available to reduce or offset future taxable income. The federal and state credits expire at various dates through 2041. These NOLs and credits could expire unused and be unavailable to offset future taxable income, to the extent subject to expiration. In addition, in general, under Sections 382 and 383 of the Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change NOLs or credits to offset future taxable income. For these purposes, an ownership change generally occurs where the aggregate change in stock ownership of one or more stockholders or groups of stockholders owning at least 5% of a corporation's stock exceeds 50 percentage points over a rolling three-year period. Homology's existing NOLs or credits may be subject to limitations arising from previous ownership changes, if any. In addition, future changes in Homology's stock ownership, many of which are outside of Homology's control, could result in an ownership change. Homology's state NOLs or credits may

also be impaired or subject to limitations under state law. Accordingly, even if Homology attains profitability, it may not be able to utilize a material portion of its NOLs or credits.

Because Homology does not anticipate paying any cash dividends on its common shares in the foreseeable future, capital appreciation, if any, would be your sole source of gain.

Homology has never declared or paid any cash dividends on its common shares. Homology anticipates that it will retain future earnings for the development and operation of its business and does not anticipate declaring or paying any cash dividends for the foreseeable future. As a result, capital appreciation, if any, of Homology's common shares would be your sole source of gain on an investment in Homology's common shares for the foreseeable future.

General Risk Factors

The market price of Homology's common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of Homology's common stock.

Homology's stock price is likely to be volatile. The stock market in general and the market for smaller biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your shares of common stock at or above the price at which you purchased them. The market price for Homology's common stock may be influenced by many factors, including:

- the success of competitive products or technologies;
- actual or expected changes in Homology's growth rate relative to its competitors;
- results of clinical trials of Homology's product candidates or those of its competitors;
- developments related to Homology's existing or any future collaborations;
- regulatory actions with respect to Homology's product candidates or its competitors' products and product candidates;
- regulatory or legal developments in the United States and other countries;
- development of new product candidates that may address Homology's markets and make its product candidates less attractive;
- changes in physician, hospital or healthcare provider practices that may make Homology's product candidates less useful;
- announcements by Homology, its collaborators or its competitors of significant acquisitions, strategic collaborations, joint ventures or capital commitments;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of Homology's product candidates or clinical development programs;
- failure to meet or exceed financial estimates and projections of the investment community or that Homology provides to the public;
- the results of Homology's efforts to discover, develop, acquire or in-license additional product candidates or products;
- actual or expected changes in estimates as to financial results, development timelines or recommendations by securities analysts;

- variations in Homology's financial results or those of companies that are perceived to be similar to Homology;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this "Risk Factors" section.

Homology expects to continue to incur costs as a result of operating as a public company, and Homology's management is required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, Homology has incurred and expect to continue to incur significant legal, accounting and other expenses that Homology did not incur as a private company. The Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Homology's management and other personnel devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations have increased Homology's legal and financial compliance costs and have made some activities more time-consuming and costly. For example, Homology expects that these rules and regulations may make it more difficult and more expensive for Homology to obtain director and officer liability insurance, which in turn could make it more difficult for Homology to attract and retain qualified members of its board of directors.

Homology continues to evaluate these rules and regulations, and cannot predict or estimate the amount of additional costs it may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, Homology is required to furnish a report by its management on its internal control over financial reporting. However, while Homology was an emerging growth company, it was not required to include an attestation report on internal control over financial reporting issued by its independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, Homology has engaged in a process to document and evaluate its internal control over financial reporting, which has been both costly and challenging. Homology will need to continue to dedicate internal resources, engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing whether such controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite Homology's efforts, there is a risk that it will not be able to conclude that its internal control over financial reporting is effective as required by Section 404. If Homology identifies one or more material weaknesses, it could cause Homology to need to restate its previously issued financial statements and result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of its financial statements.

There can be no assurance that Homology will be able to comply with the continued listing standards of Nasdaq.

If Homology fails to satisfy Nasdaq's continued listing requirements, Nasdaq may take steps to delist Homology's securities. Such a delisting would likely have a negative effect on the price of the securities and

would impair stockholders' ability to sell or purchase the securities when they wish to do so. In the event of a delisting, Homology can provide no assurance that any action taken by it to restore compliance with listing requirements would allow its securities to become listed again, stabilize the market price or improve the liquidity of its securities, or prevent future non-compliance with Nasdaq's listing requirements.

In the future, Homology may engage in acquisitions that could disrupt its business, cause dilution to its stockholders or reduce its financial resources.

In the future, Homology may enter into transactions to acquire other businesses, products or technologies. If Homology does identify suitable candidates, it may not be able to make such acquisitions on favorable terms, or at all. Any acquisitions Homology make may not strengthen its competitive position, and these transactions may be viewed negatively by customers or investors. Homology may decide to incur debt in connection with an acquisition or issue its common stock or other equity securities to the stockholders of the acquired company, which would reduce the percentage ownership of its existing stockholders. Homology could incur losses resulting from undiscovered liabilities of the acquired business that are not covered by the indemnification Homology may obtain from the seller. In addition, Homology may not be able to successfully integrate the acquired personnel, technologies and operations into its existing business in an effective, timely and nondisruptive manner. Acquisitions may also divert management attention from day-to-day responsibilities, increase Homology's expenses and reduce its cash available for operations and other uses. Homology cannot predict the number, timing or size of future acquisitions or the effect that any such transactions might have on its operating results.

Unstable global political or economic conditions may have serious adverse consequences on Homology's business, financial condition and share price.

The global economy, including credit and financial markets, has recently experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, rising interest and inflation rates, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. If the equity and credit markets continue to deteriorate, or the United States enters a recession, it may make any necessary debt or equity financing more difficult to obtain in a timely manner or on favorable terms, more costly or more dilutive. In addition, international terrorism and conflicts could disrupt or otherwise adversely impact Homology's operations and those of third parties upon which Homology relies. Related sanctions, export controls or other actions have and may in the future be initiated by nations including the U.S., the EU or Russia (e.g., potential cyberattacks, disruption of energy flows, etc.), which could adversely affect Homology's business and/or its supply chain, its CROs, CMOs and other third parties with which it conducts business. Any of the foregoing could harm Homology's business, results of operations and the price of Homology's common stock may be adversely affected.

Homology is exposed to fluctuations in inflation, which could negatively affect Homology's business, financial condition and results of operations.

The United States has recently experienced historically high levels of inflation. According to the U.S. Department of Labor, the annual inflation rate for the United States was approximately 8.0% for 2022. If the inflation rate continues to increase, it will likely affect Homology's expenses, including, but not limited to, increased cost of drug product from OXB (US) LLC and other future potential contract manufacturing organizations, supplies and employee compensation expenses. To the extent inflation results in rising interest rates and has other adverse effects on the market, it may adversely affect Homology's business, financial condition and results of operations.

The increasing focus on environmental sustainability and social initiatives could increase Homology's costs, harm its reputation and adversely impact its financial results.

There has been increasing public focus by investors, environmental activists, the media and governmental and nongovernmental organizations on a variety of environmental, social and other sustainability matters.

Homology may experience pressure to make commitments relating to sustainability matters that affect it, including the design and implementation of specific risk mitigation strategic initiatives relating to sustainability. If Homology is not effective in addressing environmental, social and other sustainability matters affecting its business, or setting and meeting relevant sustainability goals, its reputation and financial results may suffer. In addition, Homology may experience increased costs in order to execute upon its sustainability goals and measure achievement of those goals, which could have an adverse impact on its business and financial condition.

Moreover, this emphasis on environmental, social and other sustainability matters has resulted and may result in the adoption of new laws and regulations, including new reporting requirements. If Homology fails to comply with new laws, regulations or reporting requirements, its reputation and business could be adversely impacted.

Risks Related to Q32's Business

Risks Related to Q32's Limited Operating History, Financial Position and Need for Capital

Q32 has incurred significant losses since inception, expects to incur significant losses for the foreseeable future and may not be able to achieve or sustain profitability in the future. Q32 has no products for sale, has not generated any product revenue and may never generate product revenue or become profitable.

Investment in biotechnology product development is a highly speculative undertaking and entails substantial upfront expenditures and significant risks that any program will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval and become commercially viable. Q32 has no products approved for commercial sale, Q32 has not generated any revenue from product sales to date and Q32 continues to incur significant research and development and other expenses related to its ongoing operations. Q32 does not expect to generate product revenue unless or until it successfully completes clinical development and obtains regulatory approval of, and then successfully commercializes, at least one product candidate. Q32 may never succeed in these activities and, even if it does, may never generate product revenue or revenues that are significant or large enough to achieve profitability. If Q32 is unable to generate sufficient revenue through the sale of any approved products, it may be unable to continue operations without additional funding.

Q32 has incurred significant net losses in each period since it commenced operations in 2017. Q32's net loss was $26.7 million for the nine months ended September 30, 2023, and $42.8 million and $37.6 million for the years ended December 31, 2022 and 2021, respectively. As of September 30, 2023, Q32 had an accumulated deficit of $160.0 million. Q32 expects to continue to incur significant losses for the foreseeable future. Its operating expenses and net losses may fluctuate significantly from quarter to quarter and year to year. Q32 anticipates that its expenses will increase substantially if and as it:

- advances its existing and future programs through preclinical and clinical development, including expansion into additional indications;
- seeks to identify additional programs and additional product candidates;
- maintains, expands, enforces, defends and protects its intellectual property portfolio;
- seeks regulatory and marketing approvals for product candidates;
- seeks to identify, establish and maintain additional collaborations and license agreements;
- ultimately establishes a sales, marketing and distribution infrastructure to commercialize any drug products for which Q32 may obtain marketing approval, either by itself or in collaboration with others;
- commences commercial sales of products for which Q32 receives marketing approval;
- hires additional personnel including research and development, clinical and commercial;
- adds operational, financial and management information systems and personnel, including personnel to support product development;
- acquires or in-licenses products, intellectual property and technologies; and
- establishes commercial-scale current good manufacturing practices, or cGMP, capabilities through a third-party or its own manufacturing facility.

In addition, Q32's expenses will increase if, among other things, it is required by the FDA or other regulatory authorities to perform trials or studies in addition to, or different than, those that Q32 currently anticipates, there are any delays in completing its clinical trials or the development of any product candidates, or there are any third-party challenges to its intellectual property or it needs to defend against any intellectual property-related claim.

Even if Q32 obtains marketing approval for, and is successful in commercializing, one or more product candidates, Q32 expects to incur substantial additional research and development and other expenditures to develop and market additional programs and/or to expand the approved indications of any marketed product. Q32 may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect its business. The size of its future net losses will depend, in part, on the rate of future growth of its expenses and its ability to generate revenue.

Q32's failure to become profitable would decrease the value of the company and could impair its ability to raise capital, maintain its research and development efforts, expand its business and/or continue its operations. A decline in the value of Q32 could also cause you to lose all or part of your investment.

In addition, management have evaluated adverse conditions and events that raise substantial doubt about Q32's ability to continue as a going concern, and its independent registered public accounting firm included an explanatory paragraph in its report on its financial statements as of and for the year ended December 31, 2022 included elsewhere herein with respect to this uncertainty. This substantial doubt about Q32's ability to continue as a going concern could materially limit its ability to raise additional funds through the issuance of new debt or equity securities or otherwise. Future reports on its financial statements may include an explanatory paragraph with respect to its ability to continue as a going concern. Even if the Merger and Q32's Pre-Closing Financing are successfully completed, there is no assurance that adequate additional financing needed to allow Q32 to continue as a going concern will be available to it on acceptable terms, or at all. The perception that Q32 may not be able to continue as a going concern may cause others to choose not to do business with Q32 due to concerns about its ability to meet its contractual obligations.

Even if the Merger and Q32's Pre-Closing Financing are successful, Q32 will require substantial additional capital to finance its operations in the future. If Q32 is unable to raise such capital when needed, or on acceptable terms, Q32 may be forced to delay, reduce or eliminate clinical trials, product development programs or future commercialization efforts.

Developing biotechnology products is a very long, time-consuming, expensive and uncertain process that takes years to complete. Since its inception, Q32 has funded its operations primarily through private equity and debt financings and has incurred significant recurring losses. Q32 expects its expenses to increase in connection with its ongoing activities, particularly as Q32 conducts its clinical trials for bempikibart (ADX-914) and ADX-097, initiates additional clinical trials, and continues to research, develop and conduct preclinical studies of its other potential product candidates, and begins to operate as a public company. In addition, if Q32 obtains regulatory approval for any product candidate for commercial sale, including bempikibart or ADX-097, Q32 anticipates incurring significant commercialization expenses related to product manufacturing, marketing, sales and distribution activities to launch any such product. Q32's expenses could increase beyond expectations if Q32 is required by the FDA or other regulatory agencies to perform preclinical studies or clinical trials in addition to those that Q32 currently anticipates. Because the design and outcome of its current, planned and anticipated clinical trials are highly uncertain, and many of Q32's near-term plans are subject to regulatory feedback, Q32 cannot reasonably estimate the actual amount of funding that will be necessary to successfully complete the development and commercialization of any product candidate Q32 develops. Q32's future capital requirements depend on many factors, including factors that are not within its control.

Following the Merger and Q32's Pre-Closing Financing, Q32 will also incur additional costs associated with operating as a public company. Accordingly, Q32 will require substantial additional funding to continue its operations. Based on its current operating plan, and assuming the Merger and Q32's Pre-Closing Financing are successfully completed, Q32 believes that its existing cash, cash equivalents and short-term investments should be sufficient to fund its operations to mid-2026. This estimate is based on assumptions that may prove to be

materially wrong, and Q32 could use its available capital resources sooner than it currently expects. Q32's future capital requirements will depend on many factors, including:

- the timing and progress of preclinical and clinical development activities, including its ongoing Phase 2 clinical trials for bempikibart in atopic dermatitis, or AD, and alopecia areata, or AA, its planned renal basket program in lupus nephritis, or LN, immunoglobulin A, or IgA, nephropathy, or IgAN and complement component 3 glomerulopathy, or C3G, and its planned Phase 2 clinical trial for ADX-097 in anti-neutrophil cytoplasmic antibody, or ANCA, -associated vasculitis, or AAV;
- the number and scope of preclinical and clinical programs Q32 pursues;
- its ability to establish an acceptable safety profile with IND-enabling toxicology studies to enable clinical trials;
- successful patient enrollment in, and the initiation and completion of, larger and later-stage clinical trials;
- per subject trial costs;
- the number and extent of trials required for regulatory approval;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible subjects in clinical trials;
- the number of subjects that participate in the trials;
- the drop-out and discontinuation rate of subjects;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of subject participation in the trials and follow-up;
- the extent to which Q32 encounters any serious adverse events in its clinical trials;
- the timing of receipt of regulatory approvals from applicable regulatory authorities;
- the timing, receipt and terms of any marketing approvals and post-marketing approval commitments from applicable regulatory authorities;
- the extent to which Q32 establishes or maintains collaborations, strategic partnerships, or other strategic arrangements with third parties, if any, and the performance of any such third parties in connection therewith;
- hiring and retaining research and development personnel;
- its arrangements with its contract development and manufacturing organizations and contract research organizations, or CROs;
- development and timely delivery of clinical and commercial-grade drug formulations that can be used in its planned clinical trials and for commercial launch, respectfully;
- the impact of any business interruptions to its operations or to those of the third parties with whom Q32 works; and
- obtaining, maintaining, defending and enforcing patent claims and other intellectual property rights.

Adequate additional financing may not be available to Q32 on acceptable terms, or at all, and Q32 may be required to seek additional funds sooner than planned through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources. Such financing may dilute its stockholders or the failure to obtain such financing may restrict its operating activities. Any additional fundraising efforts may divert Q32's management from their day-to-day activities, which may adversely affect its business. To the extent that

Q32 raises additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences and anti-dilution protections that adversely affect your rights as a stockholder. Debt financing or refinancing may result in imposition of debt covenants, increased fixed payment obligations or other restrictions that may affect Q32's business. If Q32 raises additional funds through upfront payments or milestone payments pursuant to future collaborations with third parties, Q32 may have to relinquish valuable rights to product development programs, or grant licenses on terms that are not favorable to it. Q32's ability to raise additional capital may be adversely impacted by global macroeconomic conditions and volatility in the credit and financial markets in the U.S. and worldwide, over which Q32 may have no or little control. Its failure to raise capital as and when needed or on acceptable terms would have a negative impact on its financial condition and its ability to pursue its business strategy, and Q32 may have to delay, reduce the scope of, suspend or eliminate clinical trials, product development programs or future commercialization efforts.

Q32 has a limited operating history and has no products approved for commercial sale, which may make it difficult for you to evaluate its current business and likelihood of success and viability.

Q32 is a clinical-stage biotechnology company with limited operating history. Since its inception in 2017, Q32 has incurred significant operating losses and has utilized substantially all of its resources to conduct research and development activities (including with respect to its bempikibart and ADX-097 programs) and undertake preclinical studies of product candidates, as well as for conducting clinical trials of Q32's most advanced product candidates and the manufacturing of such product candidates, business planning, developing and maintaining its intellectual property portfolio, hiring personnel, raising capital, and providing general and administrative support for these activities. Q32 has limited significant experience as a company in initiating, conducting or completing clinical trials. In part because of this lack of experience, Q32 cannot be certain that its current and planned clinical trials will begin or be completed on time, if at all. Q32 has not yet demonstrated its ability to successfully complete Phase 3 or other pivotal clinical trials, obtain regulatory or marketing approvals, manufacture a commercial-scale product or arrange for a third party to do so on its behalf, or conduct sales, marketing and distribution activities necessary for successful product commercialization. Additionally, Q32 expects its financial condition and operating results to continue to fluctuate significantly from period to period due to a variety of factors, many of which are beyond its control. Consequently, any predictions made about Q32's future success or viability may not be as accurate as they could be if Q32 had a longer operating history.

In addition, as its business grows, Q32 may encounter unforeseen expenses, restrictions, difficulties, complications, delays and other known and unknown factors. Q32 will need to transition at some point from a company with an early research and development focus to a company capable of supporting larger scale clinical trials and eventually commercial activities. Q32 may not be successful in such a transition.

Risks Related to Discovery, Development and Commercialization

Q32 faces competition from entities that have developed or may develop programs for the diseases it plans to address with bempikibart, ADX-097 or other product candidates.

The development and commercialization of drugs and biologics is highly competitive. Q32's product candidates may compete with other product candidates in development for similar indications, and if approved, bempikibart, ADX-097 or other product candidates will face significant competition and Q32's failure to effectively compete may prevent it from achieving significant market penetration. Q32 competes with a variety of multinational biopharmaceutical companies, specialized biotechnology companies and emerging biotechnology companies, as well as academic institutions, governmental agencies, and public and private research institutions, among others. Many of the companies with which Q32 is currently competing or will compete against in the future have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products than Q32 does. Mergers and acquisitions in the pharmaceutical and biotechnology

industry may result in even more resources being concentrated among a smaller number of its competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with Q32 in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites, patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, bempikibart, ADX-097 or other product candidates.

Q32's competitors have developed, are developing or may develop programs and processes competitive with bempikibart, ADX-097 or other product candidates and processes. Competitive therapeutic treatments include those that have already been approved and accepted by the medical community and any new treatments. Q32's success will depend partially on its ability to develop and commercialize products that have a competitive safety, efficacy, dosing and/or presentation profile. Q32's commercial opportunity and success will be reduced or eliminated if competing products are safer, more effective, have a more attractive dosing profile or presentation or are less expensive than any products Q32 may develop, if any, or if competitors develop competing products or if generic products or biosimilars enter the market more quickly than Q32 is able to, if at all, and are able to gain market acceptance.

Bempikibart, ADX-097 and Q32's pipeline are in early stages of development and may fail in development or suffer delays that materially and adversely affect their commercial viability. If Q32 or its current or future collaborators are unable to complete development of, or commercialize, Q32's product candidates, or experience significant delays in doing so, its business will be materially harmed.

Q32 has no products on the market and bempikibart, ADX-097 and Q32's pipeline are in the early stages of development. As a result, Q32 expects it will be many years before it commercializes any product candidate, if any. Q32's ability to achieve and sustain profitability depends on obtaining regulatory approvals for, and successfully commercializing, bempikibart, ADX-097 or other product candidates either alone or with third parties, and Q32 cannot guarantee that it will ever obtain regulatory approval for any product candidates. Q32 has limited experience as a company in conducting and managing the clinical trials necessary to obtain regulatory approvals, including approval by the FDA or comparable foreign regulatory authorities. Q32 has also not yet demonstrated its ability to obtain regulatory approvals, manufacture a commercial scale product or arrange for a third party to do so on its behalf, or conduct sales and marketing activities necessary for successful product commercialization. Before obtaining regulatory approval for the commercial distribution of product candidates, Q32 or an existing or future collaborator must conduct extensive preclinical tests and clinical trials to demonstrate the safety and efficacy in humans of such product candidates.

Q32 or its collaborators may experience delays in initiating or completing clinical trials. Q32 or its collaborators also may experience numerous unforeseen events during, or as a result of, any current or future clinical trials that could delay or prevent Q32's ability to receive marketing approval or commercialize bempikibart, ADX-097 or any other product candidates, including:

- regulators or IRBs, the FDA or ethics committees may not authorize Q32 or its investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- Q32 may experience delays in reaching, or fail to reach, agreement on acceptable terms with prospective trial sites and prospective CROs, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- clinical trials of any product candidates may fail to show safety or efficacy, produce negative or inconclusive results and Q32 may decide, or regulators may require Q32, to conduct additional preclinical studies or clinical trials or Q32 may decide to abandon product development programs;

- the number of subjects required for clinical trials of any Q32's product candidates may be larger than it anticipates, especially if regulatory bodies require completion of non-inferiority or superiority trials compared to approved products, enrollment in these clinical trials may be slower than Q32 anticipates or subjects may drop out of these clinical trials or fail to return for post-treatment follow-up at a higher rate than Q32 anticipates;
- Q32's third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to Q32 in a timely manner, or at all, or may deviate from the clinical trial protocol or drop out of the trial, which may require that Q32 add new clinical trial sites or investigators;
- Q32 may elect to, or regulators, IRBs or ethics committees may require that Q32 or its investigators, suspend or terminate clinical research or trials for various reasons, including noncompliance with regulatory requirements or a finding that the participants in its trials are being exposed to unacceptable health risks;
- the cost of clinical trials of any of Q32's product candidates may be greater than it anticipates;
- the quality of Q32's product candidates or other materials necessary to conduct clinical trials of its product candidates may be inadequate to initiate or complete a given clinical trial;
- Q32's inability to manufacture sufficient quantities of its product candidates for use in clinical trials;
- reports from clinical testing of other therapies may raise safety or efficacy concerns about its product candidates;
- Q32's failure to establish an appropriate safety profile for a product candidate based on clinical or preclinical data for such product candidate as well as data emerging from other therapies in the same class as its product candidates; and
- the FDA or other regulatory authorities may require Q32 to submit additional data such as long-term toxicology studies or impose other requirements before permitting Q32 to initiate a clinical trial.

Commencing clinical trials in the U.S. is subject to the FDA allowing an IND to proceed after an evaluation of the proposed clinical trial design. In the event that the FDA requires Q32 to complete additional preclinical studies or Q32 is required to satisfy other FDA requests prior to commencing clinical trials, the start of its clinical trials may be delayed. Even after Q32 receives and incorporates guidance from the FDA, the FDA could disagree that Q32 has satisfied their requirements to commence any clinical trial or change their position on the acceptability of its trial design or the clinical endpoints selected, which may require Q32 to complete additional preclinical studies or clinical trials, delay the enrollment of its clinical trials or impose stricter approval conditions than Q32 currently expects. There are comparable processes and risks applicable to clinical trial applications needed to initiate clinical trials in other countries, including countries in the European Union, or EU.

Q32 may not have the financial resources to continue development of, or to modify existing or enter into new collaborations for, a product candidate if Q32 experiences any issues that delay or prevent regulatory approval of, or its ability to commercialize, bempikibart, ADX-097 or any other product candidates. Q32 or its current or future collaborators' inability to complete development of, or commercialize, bempikibart, ADX-097 or any other product candidates or significant delays in doing so, could have a material and adverse effect on its business, financial condition, results of operations and prospects.

Q32 is substantially dependent on the success of its most advanced product candidates, bempikibart and ADX-097, and its clinical trials of such candidates may not be successful.

Q32's future success is substantially dependent on its, or its current or future strategic partners', ability to timely obtain marketing approval for, and then successfully commercialize, its most advanced product candidates, bempikibart and ADX-097. Q32 is investing a majority of its efforts and financial resources into the research and development of these candidates. Q32 is developing bempikibart to treat autoimmune and

inflammatory diseases, with the aim of achieving the optimal balance of efficacy, tolerability and convenience for patients via infrequently administered subcutaneous doses. Q32 has completed a Phase 1 double-blind, placebo-controlled, single ascending dose and multiple dose study to assess the safety, PK, and PD of bempikibart after subcutaneous administration in healthy subjects. This study supported further evaluation of bempikibart, including through demonstration of a PK/PD profile supporting evaluation of every two-week subcutaneous dosing in clinical trials. Subsequent to this study, Q32 advanced bempikibart into two Phase 2 clinical trials in atopic dermatitis and alopecia areata. Both trials are currently in the dosing phase, and Q32 expects to complete both studies in 2024. The success of bempikibart may depend on having a comparable safety and efficacy profile and a more favorable dosing schedule (i.e., less frequent dosing) with patient-friendly administration (i.e., S.C. self-administration) to products currently approved or in development for the indications Q32 plans to pursue.

Q32 has completed a Phase 1 clinical trial of ADX-097 in healthy volunteers and, pending clearance of any regulatory approvals, Q32 anticipates initiating a renal basket program in LN, IgAN, C3G in the first half of 2024 and a Phase 2 clinical trial in AAV in the first quarter of 2025. The success of ADX-097 may depend on having a comparable safety and efficacy profile and a more convenient dosing schedule (i.e., less frequent dosing) with patient-friendly administration (i.e., SC self-administration) to products currently approved or in development for the indications Q32 plans to pursue.

Bempikibart and ADX-097 will require additional clinical development, evaluation of clinical and manufacturing activities, marketing approval in multiple jurisdictions, substantial investment and significant marketing efforts before Q32 generates any revenues from product sales, if any. Q32 is not permitted to market or promote these product candidates, or any other product candidates, before it receives marketing approval from the FDA and/or comparable foreign regulatory authorities, and Q32 may never receive such marketing approvals.

The success of bempikibart and ADX-097 will depend on a variety of factors. Q32 does not have complete control over many of these factors, including certain aspects of clinical development and the regulatory submission process, potential threats to its intellectual property rights and the manufacturing, marketing, distribution and sales efforts of any current or future collaborator or other third party. Accordingly, Q32 cannot guarantee that Q32 will ever be able to generate revenue through the sale of these candidates, even if approved. If Q32 is not successful in commercializing bempikibart or ADX-097, or is significantly delayed in doing so, its business will be materially harmed.

If Q32 does not achieve its projected development goals in the time frames Q32 announces and expects, the commercialization of bempikibart, ADX-097 or any other product candidates may be delayed.

From time to time, Q32 estimates the timing of the anticipated accomplishment of various scientific, clinical, regulatory and other product development goals, which Q32 sometimes refers to as milestones. These milestones may include the commencement or completion of scientific studies, preclinical studies and clinical trials and the submission of regulatory filings. From time to time, Q32 may publicly announce the expected timing of some of these milestones. All of these milestones are and will be based on numerous assumptions. The actual timing of these milestones can vary dramatically compared to Q32's estimates, in some cases for reasons beyond Q32's control. If Q32 does not meet these milestones as publicly announced, or at all, the commercialization of bempikibart, ADX-097 or any other product candidates may be delayed or never achieved.

Q32's approach to the discovery and development of product candidates is unproven, and Q32 may not be successful in its efforts to build a pipeline of product candidates with commercial value.

Q32's approach to the discovery and/or development of bempikibart and ADX-097 leverages the understanding of complement and cytokine biology in diverse tissues and indications. Bempikibart is directed at target pathways, IL-7 and TSLP signaling, that have been implicated in several inflammatory and autoimmune diseases. ADX-097 is purposefully designed to improve upon currently approved complement inhibiting products

by providing inhibition of complement in a tissue-targeted manner. However, the scientific research that forms the basis of efforts to develop bempikibart and ADX-097 is ongoing and has not been successfully proven in clinical trials. The long-term safety and exposure profile of bempikibart and ADX-097 is also unknown.

Q32 may ultimately discover that its technologies for its specific targets and indications and bempikibart, ADX-097 or any product candidates resulting therefrom do not possess certain properties required for therapeutic effectiveness Q32 currently has only data from its Phase 1 clinical trial and blinded data from its Phase 2 Part A AD clinical trial related to bempikibart, and only data from its Phase 1 clinical trial regarding properties of ADX-097, and the same data or results may not be seen in larger, later-stage clinical trials. In addition, product candidates using investigational technologies and approaches may demonstrate different chemical and pharmacological properties in patients than they do in laboratory studies and bempikibart and ADX-097 may interact with human biological systems in unforeseen, ineffective or possibly harmful ways.

In addition, Q32 may in the future seek to discover and develop product candidates that are based on novel targets and technologies that are unproven. If its discovery activities fail to identify novel targets or technologies for drug discovery, or such targets prove to be unsuitable for treating human disease, Q32 may not be able to develop viable additional product candidates. Q32 and its existing or future collaborators may never receive approval to market and commercialize bempikibart, ADX-097 or future product candidates. Even if Q32 or an existing or future collaborator obtains regulatory approval, the approval may be for targets, disease indications or patient populations that are not as broad as Q32 intended or desired or may require labeling that includes significant use or distribution restrictions or safety warnings. If the products resulting from bempikibart, ADX-097 or any other product candidates prove to be ineffective, unsafe or commercially unviable, Q32's product candidates and pipeline may have little, if any, value, which may have a material and adverse effect on its business, financial condition, results of operations and prospects.

Preclinical and clinical development involves a lengthy and expensive process that is subject to delays and with uncertain outcomes, and results of earlier studies and trials may not be predictive of future clinical trial results. If Q32's preclinical studies and clinical trials are not sufficient to support regulatory approval of any of its product candidates, Q32 may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development of such product candidate.

Before obtaining marketing approval from regulatory authorities for the sale of any product candidate, Q32 must complete preclinical studies and then conduct extensive clinical trials to demonstrate the safety and efficacy of its product candidate in humans. Q32's clinical trials may not be conducted as planned or completed on schedule, if at all, and failure can occur at any time during the preclinical study or clinical trial process. For example, Q32 depends on the availability of NHPs to conduct certain preclinical studies that Q32 is required to complete prior to submitting an IND and initiating clinical development. There is currently a global shortage of certain types of NHPs available for GLP testing for drug development. This could cause the cost of obtaining NHPs for Q32's future preclinical studies to increase significantly, and if the shortage continues, and could result in delays to Q32's development timelines. Furthermore, a failure of one or more clinical trials can occur at any stage of testing. The outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later clinical trials. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their product candidates. In addition, Q32 expects to rely on patients to provide feedback on measures, which are subjective and inherently difficult to evaluate. These measures can be influenced by factors outside of its control, and can vary widely from day to day for a particular patient, and from patient to patient and from site to site within a clinical trial.

Although Q32 plans to seek regulatory guidance in designing and conducting its development plans, Q32 cannot be sure, that the FDA or comparable foreign regulatory authorities will agree with these plans. If the FDA or comparable regulatory authorities requires Q32 to revise or amend a clinical study, generate additional

pre-clinical data in support of clinical conduct (e.g., toxicology studies), conduct additional trials or enroll additional patients, its development timelines may be delayed. Q32 cannot be sure that submission of an IND application, CTA or similar application will result in the FDA or comparable foreign regulatory authorities, as applicable, allowing clinical trials to begin in a timely manner, if at all. Moreover, even if these trials begin, issues may arise that could cause regulatory authorities to suspend or terminate such clinical trials. Events that may prevent successful or timely initiation or completion of clinical trials include:

- inability to generate sufficient preclinical, toxicology or other *in vivo* or *in vitro* data to support the initiation or continuation of clinical trials;
- delays in reaching a consensus with regulatory authorities on study design or implementation of the clinical trials;
- delays or failure in obtaining regulatory authorization to commence a trial;
- delays in reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- delays in identifying, recruiting and training suitable clinical investigators;
- delays in obtaining required IRB or ethics committee approval at each clinical trial site;
- difficulties in patient enrollment in Q32's clinical trials for a variety of reasons;
- delays in manufacturing, testing, releasing, validating or importing/exporting sufficient stable quantities of its product candidates for use in clinical trials or the inability to do any of the foregoing;
- failure by its CROs, other third parties or Q32 to adhere to clinical trial protocols;
- failure to perform in accordance with the FDA's or any other regulatory authority's Good Clinical Practices, or GCPs, or regulations or applicable regulations or regulatory guidelines in other countries;
- changes to the clinical trial protocols; clinical sites deviating from trial protocol or dropping out of a trial;
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols;
- selection of clinical endpoints that require prolonged periods of observation or analyses of resulting data;
- transfer of manufacturing processes to larger-scale facilities operated by a CMO and delays or failure by its CMOs or Q32 to make any necessary changes to such manufacturing process; and
- third parties being unwilling or unable to satisfy their contractual obligations to Q32.

Q32 could also encounter delays if a clinical trial is placed on clinical hold, suspended or terminated by Q32, the FDA, the competent authorities of the EU Member States or other regulatory authorities or the IRBs or ethics committees of the institutions in which such trials are being conducted, if a clinical trial is recommended for suspension or termination by the data safety monitoring board, or DSMB, or equivalent body for such trial, or on account of changes to federal, state, or local laws. If Q32 is required to conduct additional clinical trials or other testing of bempikibart, ADX-097 or any other product candidates beyond those that Q32 contemplates, if Q32 is unable to successfully complete clinical trials of bempikibart, ADX-097 or any other product candidates, if the results of these trials are not positive or are only moderately positive or if there are safety concerns, its business and results of operations may be adversely affected and Q32 may incur significant additional costs.

Q32 may not be successful in its efforts to identify or discover additional product candidates in the future.

A key part of Q32's long-term business strategy is to identify and develop additional product candidates. Its preclinical research and clinical trials may initially show promise in identifying potential product candidates yet

fail to yield product candidates for clinical development for a number of reasons. For example, Q32 may be unable to identify or design additional product candidates with the pharmacological and pharmacokinetic drug properties that Q32 desires, including, but not limited to, adequate tissue targeting, acceptable safety profile or the potential for the product candidate to be delivered in a convenient formulation. Research programs to identify new product candidates require substantial technical, financial, and human resources. If Q32 is unable to identify suitable complement targeting strategies for preclinical and clinical development, Q32 may not be able to successfully implement its business strategy, and may have to delay, reduce the scope of, suspend or eliminate one or more of its product candidates, clinical trials or future commercialization efforts, which would negatively impact its financial condition.

If Q32 encounters difficulties enrolling patients in its future clinical trials, its clinical development activities could be delayed or otherwise adversely affected.

Q32 may experience difficulties in patient enrollment in its future clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with their protocols depends, among other things, on the ability to enroll a sufficient number of patients who remain in the trial until its conclusion. The enrollment of patients in future trials for bempikibart, ADX-097 or any other product candidates will depend on many factors, including if patients choose to enroll in clinical trials, rather than using approved products, or if its competitors have ongoing clinical trials for product candidates that are under development for the same indications as Q32's product candidates, and patients instead enroll in such clinical trials. Additionally, the number of patients required for clinical trials of bempikibart, ADX-097 or any other product candidates may be larger than Q32 anticipates, especially if regulatory bodies require the completion of non-inferiority or superiority trials compared to approved products. Even if Q32 is able to enroll a sufficient number of patients for its future clinical trials, Q32 may have difficulty maintaining patients in its clinical trials. Its inability to enroll or maintain a sufficient number of patients would result in significant delays in completing clinical trials or receipt of marketing approvals and increased development costs or may require Q32 to abandon one or more clinical trials altogether.

Preliminary, "topline" or interim data from its clinical trials that Q32 announces or publishes from time to time may change as more patient data becomes available and are subject to audit and verification procedures.

From time to time, Q32 may publicly disclose preliminary or topline data from its preclinical studies and clinical trials, which are based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data. Q32 also makes assumptions, estimations, calculations and conclusions as part of its analyses of these data without the opportunity to fully and carefully evaluate complete data. As a result, the preliminary or topline results that Q32 report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated or subsequently made subject to audit and verification procedures. Any preliminary or topline data should be viewed with caution until the final data is available. From time to time, Q32 may also disclose interim data from its preclinical studies and clinical trials. Interim data are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available or as patients from its clinical trials continue other treatments.

Further, others, including regulatory agencies, may not accept or agree with its assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular product candidate, the approvability or commercialization of a particular product candidate and Q32 in general. In addition, the information Q32 chooses to publicly disclose regarding a particular preclinical study or clinical trial is based on what is typically extensive information, and you or others may not agree with what Q32 determines is material or otherwise appropriate information to include in its disclosure. If the preliminary, topline or interim data that Q32 reports differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, Q32's ability to obtain approval for, and commercialize, bempikibart, ADX-097 or any other product candidate may be harmed, which could harm its business, operating results, prospects or financial condition.

Q32's current or future clinical trials or those of its future collaborators may reveal significant adverse events or undesirable side effects not seen in its preclinical and/or early clinical studies and may result in a safety profile that could halt clinical development, inhibit regulatory approval or limit commercial potential or market acceptance of any of bempikibart, ADX-097 or any other product candidates or result in potential product liability claims.

Results of Q32's clinical trials could reveal a high and unacceptable severity and prevalence of side effects, adverse events or unexpected characteristics. While Q32's completed preclinical studies and its completed and ongoing clinical trials in humans have not shown any such characteristics to date, significant further evaluation must be done of each of Q32's product candidates. If significant adverse events or other side effects are observed in any of its current or future clinical trials, Q32 may have difficulty recruiting patients to such trials, patients may drop out of its trials, patients may be harmed, or Q32 may be required to abandon the trials or its development efforts of one or more product candidates altogether, including bempikibart or ADX-097. Q32, the FDA, the EMA, or other applicable regulatory authorities, or an IRB or ethics committee, may suspend any clinical trials of bempikibart, ADX-097 or any other product candidates at any time for various reasons, including a belief that subjects or patients in such trials are being exposed to unacceptable health risks or adverse side effects. Some potential products developed in the biotechnology industry that initially showed therapeutic promise in early-stage trials have later been found to cause side effects that prevented their further development. Even if the side effects do not preclude a product candidate from obtaining or maintaining marketing approval, undesirable side effects may inhibit market acceptance of an approved product due to its tolerability versus other therapies. Treatment-emergent adverse events could also affect patient recruitment or the ability of enrolled subjects to complete its clinical trials or could result in potential product liability claims. Potential side effects associated with bempikibart, ADX-097 or any other product candidates may not be appropriately recognized or managed by the treating medical staff, as toxicities resulting from bempikibart, ADX-097 or any other product candidates may not be normally encountered in the general patient population and by medical personnel. Any of these occurrences could harm Q32's business, financial condition, results of operations and prospects significantly.

In addition, even if Q32 successfully advances bempikibart, ADX-097 or any other product candidates through clinical trials, such trials will only include a limited number of patients and limited duration of exposure to such product candidates. As a result, Q32 cannot be assured that adverse effects of bempikibart, ADX-097 or any other product candidates will not be uncovered when a significantly larger number of patients are exposed to such product candidate after approval. Further, any clinical trials may not be sufficient to determine the effect and safety consequences of using Q32's product candidate over a multi-year period.

If any of the foregoing events occur or if bempikibart, ADX-097 or any other product candidates prove to be unsafe, Q32's entire pipeline could be affected, which would have a material adverse effect on its business, financial condition, results of operations and prospects.

Q32 may expend its limited resources to pursue a particular product candidate, such as bempikibart or ADX-097, and fail to capitalize on candidates that may be more profitable or for which there is a greater likelihood of success.

Because Q32 has limited financial and managerial resources, Q32 intends to focus its research and development efforts on certain selected product candidates. For example, Q32 is initially focused on its most advanced product candidates, bempikibart and ADX-097. As a result, Q32 may forgo or delay pursuit of opportunities with other potential candidates that may later prove to have greater commercial potential. Q32's resource allocation decisions may cause Q32 to fail to capitalize on viable commercial products or profitable market opportunities. Q32's spending on current and future research and development programs for specific indications may not yield any commercially viable product candidates. If Q32 does not accurately evaluate the commercial potential or target market for a particular product candidate, Q32 may relinquish valuable rights to that candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for Q32 to retain sole development and commercialization rights to such candidate.

Even if regulatory approval is obtained, any approved products resulting from bempikibart, ADX-097 or any other product candidate may not achieve adequate market acceptance among clinicians, patients, healthcare third-party payors and others in the medical community necessary for commercial success and Q32 may not generate any future revenue from the sale or licensing of such products.

Even if regulatory approval is obtained for bempikibart, ADX-097 or any other product candidates, they may not gain market acceptance among physicians, patients, healthcare payors or the medical community. Q32 may not generate or sustain revenue from sales of the product due to factors such as whether the product can be sold at a competitive cost and whether it will otherwise be accepted in the market. There are several approved products and product candidates in later stages of development for the treatment of LN, IgAN, C3G, AAV, AD and AA. Market participants with significant influence over acceptance of new treatments, such as clinicians and third-party payors, may not adopt a drug or biologic with a target product profile such as that of bempikibart or ADX-097 for its targeted indications, and Q32 may not be able to convince the medical community and third-party payors to accept and use, or to provide favorable reimbursement for, any product candidates developed by Q32 or its existing or future collaborators. Market acceptance of bempikibart, ADX-097 or any other product candidates will depend on many factors, including factors that are not within the control of Q32.

Sales of products also depend on the willingness of clinicians to prescribe the treatment. Q32 cannot predict whether clinicians, clinicians' organizations, hospitals, other healthcare providers, government agencies or private insurers will determine that any of its approved products are safe, therapeutically effective, cost effective or less burdensome as compared with competing treatments. If bempikibart, ADX-097 or any other product candidate is approved but does not achieve an adequate level of acceptance by such parties, Q32 may not generate or derive sufficient revenue from that product and may not become or remain profitable.

Q32 has never commercialized a product candidate and may lack the necessary expertise, personnel and resources to successfully commercialize a product candidate on its own or together with suitable collaborators.

Q32 has never commercialized a product candidate, and Q32 currently has no sales force, marketing or distribution capabilities. To achieve commercial success for a product candidate, which Q32 may license to others, Q32 may rely on the assistance and guidance of those collaborators. For a product candidate for which Q32 retains commercialization rights and marketing approval, Q32 will have to develop its own sales, marketing and supply organization or outsource these activities to a third party. Factors that may affect its ability to commercialize a product candidate, if approved, on its own include recruiting and retaining adequate numbers of effective sales and marketing personnel, developing adequate educational and marketing programs to increase public acceptance of its approved product candidate, ensuring regulatory compliance of Q32, employees and third parties under applicable healthcare laws and other unforeseen costs associated with creating an independent sales and marketing organization. Developing a sales and marketing organization will be expensive and time-consuming and could delay the launch of a product candidate upon approval. Q32 may not be able to build an effective sales and marketing organization. If Q32 is unable to build its own distribution and marketing capabilities or to find suitable partners for the commercialization of an approved product candidate, Q32 may not generate revenues from them or be able to reach or sustain profitability.

Q32 has never completed any late-stage clinical trials and Q32 may not be able to submit applications for regulatory authorizations to commence additional clinical trials on the timelines Q32 expects, and, even if Q32 is able to, the FDA, EMA or comparable foreign regulatory authorities may not permit Q32 to proceed and could also suspend/terminate the trial after it has been initiated.

Q32 is early in its development efforts and will need to successfully complete later-stage and pivotal clinical trials in order to obtain FDA, EMA or comparable foreign regulatory approval to market its product candidates. Carrying out clinical trials and the submission of a successful IND or CTA is a complicated process. As an organization, Q32 has limited experience as a company in preparing, submitting and prosecuting regulatory filings. Assuming regulatory authorities allow Q32's proposed clinical trials for ADX-097 to proceed after

review of Q32's IND or CTA submissions, Q32 intends to initiate a renal basket program in LN, IgAN and C3G and a Phase 2 clinical trial in AAV. However, Q32 may not be able to initiate its planned clinical trials for ADX-097 in accordance with its desired timelines. For example, Q32 may experience manufacturing delays or other delays with IND-or CTA-enabling studies, including with suppliers, study sites, or third-party contractors and vendors on whom Q32 depends. Moreover, Q32 cannot be sure that submission of an IND or a CTA or submission of a trial to an IND or a CTA will result in the FDA or EMA or comparable foreign regulatory authorities allowing further clinical trials to begin, or that, once begun, issues will not arise that lead Q32 to suspend or terminate clinical trials. For example, upon submission of Q32's IND or CTA for its planned clinical trials for ADX-097, the FDA or EMA may recommend changes to the proposed study designs, which may impact the number and size of registrational clinical trials required to be conducted in such development programs and may change Q32's predicted timeline for clinical development. Consequently, Q32 may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to regulatory submission and approval of its product candidates. Additionally, even if regulatory authorities agree with the design and implementation of the clinical trials set forth in an IND or a CTA, such regulatory authorities may change their requirements in the future. The FDA, EMA or comparable foreign regulatory authorities may require the analysis of data from trials assessing different doses of the product candidate alone or in combination with other therapies to justify the selected dose prior to the initiation of large trials in a specific indication. Any delays or failure to file INDs or CTAs, initiate clinical trials, or obtain regulatory authorizations for its trials may prevent Q32 from completing its clinical trials or commercializing its products on a timely basis, if at all. Q32 is subject to similar risks related to the review and authorization of its protocols and amendments by comparable foreign regulatory authorities.

Risks Related to Q32's Intellectual Property

Q32's ability to protect its patents and other proprietary rights is uncertain, exposing it to the possible loss of competitive advantage.

Q32 relies upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to its product candidates and to prevent third parties from infringing on its patents and trademarks or misappropriating or violating its other intellectual property rights, thus eroding Q32's competitive position in its market. Q32's success depends in large part on Q32's ability to obtain and maintain patent protection for its product candidates and their uses, components, formulations, methods of manufacturing and methods of treatment, as well as Q32's ability to operate without infringing on or violating the proprietary rights of others. Q32 has licensed know-how and patent families that pertain to, among other things, composition of matter and certain methods of use relating to Q32's leading product candidates bempikibart and ADX-097. Q32 seeks to protect its proprietary position by filing patent applications in the United States and abroad related to Q32's product candidates and novel discoveries that are important to its business. Q32's intellectual property strategy is, where appropriate, to file new patent applications on inventions, including improvements to existing products candidates and processes to improve Q32's competitive edge or to improve business opportunities. Q32 continues to assess and refine its intellectual property strategy to ensure appropriate protection and rights are secured. However, Q32's pending and future patent applications may not result in patents being issued. Q32 cannot assure you that issued patents will afford sufficient protection of its product candidates or their intended uses against competitors, nor can there be any assurance that the patents issued will not be infringed, designed around, invalidated by third parties, or effectively prevent others from commercializing competitive products or product candidates.

Obtaining and enforcing patents is expensive and time-consuming, and Q32 may not be able to file, prosecute, maintain, enforce or license all necessary or desirable patent applications or maintain and/or enforce patents that may issue based on Q32's patent applications, at a reasonable cost or in a timely manner. Q32 may not be able to obtain or maintain patent applications and patents due to the subject matter claimed in such patent applications and patents being in disclosures in the public domain. It is also possible that Q32 will fail to identify patentable aspects of Q32's research and development results before it is too late to obtain patent protection.

Although Q32 enters into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of Q32's research and development output, such as its employees, corporate collaborators, outside scientific collaborators, CROs, CMOs, consultants, advisors and other third parties, any of these parties may breach these agreements and disclose such results before a patent application is filed, thereby jeopardizing Q32'sr ability to seek patent protection. Consequently, Q32 may not be able to prevent any third parties from using any of Q32's technology that is in the public domain to compete with its product candidates.

Composition of matter patents for biotechnology and pharmaceutical product candidates often provide a strong form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. However, Q32 cannot be certain that the claims in Q32's pending patent applications directed to the composition of matter of its product candidates will be considered patentable by the United States Patent and Trademark Office, or USPTO, or by patent offices in foreign jurisdictions, or that the claims in any of Q32's issued patents will be considered valid and enforceable by courts in the United States or foreign jurisdictions. Method of use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to Q32's product candidates for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for Q32's targeted indications, clinicians may prescribe these products "off-label." Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of Q32's patent rights are highly uncertain. Q32's current or future patent applications may not result in patents being issued which protect Q32's technology or drug candidates or which do not effectively prevent others from commercializing competitive technologies and drug candidates. The patent examination process may require Q32 or Q32's licensors to narrow the scope of the claims of Q32's or Q32's licensors' pending and future patent applications, which may limit the scope of patent protection that may be obtained. Q32 cannot assure you that all of the potentially relevant prior art relating to Q32's patents and patent applications has been found. If such prior art exists, it can invalidate a patent or prevent a patent application from being issued as a patent.

The issuance of a patent does not ensure that it is valid or enforceable, nor does it give Q32 the right to practice the patented invention. Issued patents may be challenged, narrowed, invalidated or circumvented and third parties may have blocking patents that could prevent Q32 from commercializing its product candidates or technologies. While Q32 endeavors to identify and circumvent third-party patents and patent applications which may block its product candidates or technologies to minimize this risk, relevant documents may be overlooked or missed, which may in turn impact Q32's ability to commercialize the relevant asset. In addition, court decisions may introduce uncertainty in the enforceability or scope of patents owned by pharmaceutical and biotechnology companies. Thus, any of Q32's issued patents, including patents that Q32 may rely on to protect its market for approved drugs, may be held invalid or unenforceable by a court of final jurisdiction.

A third party may also claim that Q32's patent rights are invalid or unenforceable in a litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable. An adverse result in any legal proceeding could put one or more of Q32's patents at risk of being invalidated or interpreted narrowly and could allow third parties to commercialize its products and compete directly with Q32, without payment to Q32, or result in its inability to manufacture or commercialize its technology, products or product candidates without infringing third-party patent rights.

Because patent applications in the U.S., Europe and many other jurisdictions are typically not published until 18 months after filing, and because publications of discoveries in scientific literature lag behind actual discoveries, Q32 cannot be certain that Q32 were the first to make the inventions claimed in its issued patents or future patent applications, or that Q32 were the first to file for protection of the inventions set forth in its patents

or patent applications. As a result, Q32 may not be able to obtain or maintain protection for certain inventions. Therefore, the enforceability and scope of Q32's future patents in the U.S., Europe and in many other jurisdictions cannot be predicted with certainty and, as a result, any future patents that Q32 owns, or license may not provide sufficient protection against competitors. Q32 may not be able to obtain or maintain patent protection from its patent applications that Q32 may file in the future, or from those Q32 may license from third parties. Moreover, even if Q32 is able to obtain patent protection, such patent protection may be of insufficient scope to achieve its business objectives.

In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such product candidates might expire before or shortly after such candidates are commercialized. The degree of future protection for Q32's proprietary rights is uncertain. Only limited protection may be available and may not adequately protect Q32's rights or permit Q32 to gain or keep any competitive advantage. Any failure to obtain or maintain patent protection with respect to Q32's product candidates or their uses could adversely affect its business, financial condition, results of operations and prospects.

Q32's rights to develop and commercialize its product candidates are and in the future may be subject to the terms and conditions of licenses granted to Q32 by others. If Q32 fails to comply with Q32's obligations in the agreements under which Q32 licenses intellectual property rights from third parties, or these agreements are terminated, or Q32 otherwise experience disruptions to Q32's business relationships with its licensors, Q32 could lose license rights that are important to its business.

Q32 is dependent on patents rights, know-how and proprietary technology licensed from third parties. In particular, Q32 depends substantially on its license agreement with Bristol Myers Squibb Company, or BMS, under which Q32 in-license patent rights and know-how that cover bempikibart, or BMS Agreement, and The Regents of the University of Colorado, or Colorado Agreement, under which Q32 in-license patent rights and know-how relating to ADX-097. For more information regarding the BMS Agreement and Colorado Agreement, please see the section titled "*Business–Collaboration and License Agreements.*" Q32 may also enter into additional agreements with third parties in the future.

Q32's current and future license agreements may impose diligence, development and commercialization timelines, milestone payments, royalties, indemnification, insurance, or other obligations on Q32. For example, under both the BMS License Agreement and Colorado Agreement, the counterparties may terminate the agreements if Q32 fails to meet its diligence obligations, including using commercially reasonable efforts to meet diligence milestones by specified dates. If Q32 fails to comply with its obligations to its licensors or collaborators, Q32's counterparties may have the right to terminate these agreements. Termination of these agreements or reduction or elimination of Q32's rights under these agreements may result in Q32 having to negotiate new or reinstated agreements with less favorable terms, or cause Q32 to lose its rights under these agreements, including its rights to important intellectual property or technology that are necessary for its business.

Certain patent filings relating to Q32's product candidates may be subject to step-in rights of certain of its licensors. Q32 may have limited control over its licensor's activities or use or licensing of any other intellectual property that may be related to its in-licensed intellectual property. If any of Q32's licensors or licensees having rights to file, prosecute, maintain, and defend its patent rights fail to conduct these activities for patents or patent applications covering any of Q32's product candidates, its ability to develop and commercialize those product candidates may be adversely affected and Q32 may not be able to prevent competitors or other third parties from making, using or selling competing products. Q32 cannot be certain that such activities by its licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents or other intellectual property rights. Pursuant to the terms of the license agreements with Q32's licensors, such licensors may have the right to control enforcement of its licensed patents or defense of any claims asserting the invalidity of such patents and, even if Q32 are permitted to pursue such enforcement or defense, Q32 cannot

ensure the cooperation of its licensors or, in some cases, other necessary parties, such as any co-owners of patents or other intellectual property from which Q32 has not yet obtained a license. Q32 cannot be certain that its licensors, and in some cases, their co-owners, will allocate sufficient resources or prioritize their or Q32's enforcement of such patents or defense of such claims to protect its interests in the licensed patents. Even if Q32 is not a party to these legal actions, an adverse outcome could harm its business because it might prevent Q32 from continuing to license intellectual property that Q32 may need to operate its business. In addition, even when Q32 has the right to control patent prosecution of licensed patents and patent applications, enforcement of licensed patents, or defense of claims asserting the invalidity of those patents, Q32 may still be adversely affected or prejudiced by actions or inactions of its licensors and their counsel that took place prior to or after its assuming control.

Q32's current or future license agreements may not provide exclusive or sufficient rights to use such intellectual property and technology in all relevant fields of use and in all territories in which Q32 may wish to develop or commercialize its product candidates in the future. Some licenses granted to Q32 may be subject to certain preexisting rights held by the licensors or certain third parties. As a result, Q32 may not be able to prevent third parties from developing and commercializing competitive products in certain territories or fields.

In the event that Q32's third party licensors determine that, in spite of its efforts, Q32 have materially breached a license agreement or have failed to meet certain obligations thereunder, it may elect to terminate the license agreement or, in some cases, one or more license(s) under the applicable license agreement. Such termination could result in Q32 losing the ability to develop and commercialize product candidates and technology covered by the licensed intellectual property. In the event of such termination of a third-party in-license, or if the underlying patent rights under a third-party in-license fail to provide the intended exclusivity, third parties may be able to seek regulatory approval of, and to market, products identical to Q32's. Moreover, Q32's licensors may own or control intellectual property that has not been licensed to Q32 and, as a result, Q32 may be subject to claims, regardless of their merit, that Q32 is infringing or otherwise violating the licensor's rights. Any of these events could have a material adverse effect on its competitive position, business, financial conditions, results of operations and prospects.

If Q32's current or future license agreements are terminated, or if the underlying patent rights fail to provide the intended exclusivity, competitors or other third parties may be able to seek regulatory approval of, and to market, products identical to Q32's and Q32 may be required to cease its development and commercialization of its product candidates. Any of the foregoing could have a material adverse effect on Q32's competitive position, business, financial condition, results of operations and prospects. Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which Q32's technology and processes infringe, misappropriate or violate intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent rights to third parties under Q32's license agreements or collaborative development relationships;
- Q32's diligence obligations under the license agreement with respect to the use of the licensed technology in relation to its development and commercialization of its product candidates and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by Q32's licensor and Q32 and Q32's partners; or
- the priority of invention of patented technology.

Q32's current or future license agreements may be subject to certain rights retained by third parties.

Q32's current or future licensors may retain certain rights under the relevant agreements with Q32, including the right to use the underlying product candidates for academic and research use, to publish general

scientific findings from research related to the product candidates, to make customary scientific and scholarly disclosures of information relating to the product candidates, or to develop or commercialize the licensed product candidates in certain regions. In addition, the United States federal government retains certain rights in inventions produced with its financial assistance under the Patent and Trademark Law Amendments Act, or Bayh-Dole Act, including a "nonexclusive, nontransferable, irrevocable, paid-up license" for its own benefit. Q32 may at times choose to collaborate with academic institutions to accelerate its preclinical research or development that are subject to the Bayh-Dole Act. The Bayh-Dole Act also provides federal agencies with "march-in rights." March-in rights allow the government, in specified circumstances, to require the contractor or successors in title to the patent to grant a "nonexclusive, partially exclusive, or exclusive license" to a "responsible applicant or applicants." If the patent owner refuses to do so, the government may grant the license itself.

In addition, the United States government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for United States manufacturers may limit our ability to contract with non-United States product manufacturers for products covered by such intellectual property. Any exercise by the government of any of the foregoing rights could harm Q32's competitive position, business, financial condition, results of operations and prospects.

Q32 cannot ensure that patent rights relating to inventions described and claimed in its current or future licensors pending patent applications will issue or that patents based on Q32 or any of Q32's current future licensors patent applications will not be challenged and rendered invalid and/or unenforceable.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that Q32 or any potential future licensors or collaborators will be successful in protecting its product candidates by obtaining and defending patents. Q32 have several pending United States and foreign patent applications in its portfolio. Q32 cannot predict:

- if and when patents may issue based on Q32's patent applications;
- the scope of protection of any patent issuing based on Q32's patent applications;
- whether the claims of any patent issuing based on Q32's patent applications will provide protection against competitors;
- whether or not third parties will find ways to invalidate or circumvent Q32's patent rights;
- whether or not others will obtain patents claiming aspects similar to those covered by Q32's patents and patent applications;
- whether Q32 will need to initiate litigation or administrative proceedings to enforce and/or defend Q32's patent rights which will be costly whether Q32 win or lose; and
- whether the patent applications that Q32 own will result in issued patents with claims that cover its product candidates or uses thereof in the United States or in other foreign countries.

Q32 cannot be certain that the claims in its or any future licensors' pending patent applications directed to its product candidates will be considered patentable by the USPTO or by patent offices in foreign countries. There can be no assurance that any such patent applications will issue as granted patents. One aspect of the determination of patentability of Q32's or any future licensors' inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which Q32 is not aware that may affect the

patentability of its or any future licensors' patent claims or, if issued, affect the validity or enforceability of a patent claim. Even if the patents do issue based on Q32's or any future licensors' patent applications, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, patents in Q32's or any future licensors' portfolio may not adequately exclude third parties from practicing relevant technology or prevent others from designing around its claims. If the breadth or strength of Q32's intellectual property position with respect to its product candidates is threatened, it could dissuade companies from collaborating with Q32 to develop and threaten its ability to commercialize its product candidates. In the event of litigation or administrative proceedings, Q32 cannot be certain that the claims in any of its issued patents will be considered valid by courts in the United States or foreign countries.

Q32 enjoys only limited geographical protection with respect to its patents and licensed patents and may not be able to protect Q32's intellectual property rights throughout the world.

Q32 may not be able to protect its intellectual property rights throughout the world and the legal systems in certain countries may not favor enforcement or protection of patents, trade secrets and other intellectual property. Patents are of national or regional effect, and although Q32 currently has issued patents and pending applications in the United States, filing, prosecuting and defending patents on all of Q32's research programs and product candidates in all countries throughout the world would be prohibitively expensive. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States, even in jurisdictions where Q32 does pursue patent protection. Consequently, Q32 may not be able to prevent third parties from practicing Q32's or any of its licensors' inventions in all countries outside the United States, even in jurisdictions where Q32 or any of Q32's current or future licensors do pursue patent protection, or from selling or importing products made using Q32's or any of Q32's licensors' inventions in and into the United States or other jurisdictions. Competitors may use Q32's or any of its licensors' technologies in jurisdictions where Q32 has not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where Q32 or any future licensors have patent protection, but enforcement is not as strong as that in the United States. These competitor products may compete with Q32's product candidates, and Q32's or any of its licensors' patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Various companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of many countries do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology and pharmaceutical products, which could make it difficult for Q32 to stop the infringement of Q32's or Q32's licensors' patents or marketing of competing products in violation of its proprietary rights.

In addition, some countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. Many countries also limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If Q32 or any of Q32's licensors is forced to grant a license to third parties with respect to any patents relevant to its business, Q32's competitive position may be impaired, and its business and financial condition may be adversely affected. Accordingly, Q32's efforts to enforce its intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that Q32 develops or licenses.

Certain countries outside the United States have laws that may impact a patent owner's right to claim priority or require a patent applicant to obtain a foreign filing license or first file patent applications in a foreign jurisdiction to the extent that foreign nationals are involved in the development of the claimed subject matter of the resulting patent. Q32's pending and future patent applications may not result in patents being issued that comply with the law of each foreign jurisdiction. Pending applications and issued patents may be challenged in various jurisdictions for failure to comply with local foreign laws, which could result in the rejection of pending

applications or invalidation of issued patents. Further, the standards applied by the USPTO and foreign patent offices in granting patents are not always applied uniformly or predictably. As such, Q32 does not know the degree of future protection that Q32 will have on its product candidates. While Q32 will endeavor to try to protect its product candidates with intellectual property rights, such as patents, as appropriate, the process of obtaining patents is time consuming, expensive and unpredictable.

In addition, geo-political actions in the United States and in foreign countries could increase the uncertainties and costs surrounding the prosecution or maintenance of Q32's patent applications or those of any current or future licensors and the maintenance, enforcement or defense of Q32's issued patents or those of any current or future licensors. For example, the United States and foreign government actions related to Russia's conflict in Ukraine may limit or prevent filing, prosecution, and maintenance of patent applications in Russia. Government actions may also prevent maintenance of issued patents in Russia. These actions could result in abandonment or lapse of Q32's patents or patent applications, resulting in partial or complete loss of patent rights in Russia. If such an event were to occur, it could have a material adverse effect on its business. In addition, a decree was adopted by the Russian government in March 2022, allowing Russian companies and individuals to exploit inventions owned by patentees from the United States without consent or compensation. Consequently, Q32 would not be able to prevent third parties from practicing its inventions in Russia or from selling or importing products made using Q32's inventions in and into Russia. Accordingly, Q32's competitive position may be impaired, and its business, financial condition, results of operations and prospects may be adversely affected.

Obtaining and maintaining Q32's patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and its patent protection could be reduced or eliminated if Q32 fails to comply with these requirements.

Periodic maintenance and annuity fees on any issued patent are due to be paid to the U.S. Patent and Trademark Office, or USPTO, and foreign patent agencies over the lifetime of a patent. In addition, the USPTO and other foreign patent agencies require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent application process. While an inadvertent failure to make payment of such fees or to comply with such provisions can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which such non-compliance will result in the abandonment or lapse of the patent or patent application, and the partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, and non-payment of fees and failure to properly legalize and submit formal documents within prescribed time limits. If Q32 or Q32's licensors fail to maintain the patents and patent applications covering its drug candidates or if Q32 or Q32's licensors otherwise allow its patents or patent applications to be abandoned or lapse, Q32's competitors might be able to enter the market, which would hurt Q32's competitive position and could impair its ability to successfully commercialize its drug candidates in any indication for which they are approved.

Issued patents covering one or more of Q32's product candidates could be found invalid or unenforceable.

Any issued patents that Q32 may license or own covering its product candidates could be narrowed or found invalid or unenforceable if challenged in court or before administrative bodies in the U.S. or abroad, including the USPTO. Patent terms, including any extensions or adjustments that may or may not be available to Q32, may be inadequate to protect its competitive position with respect to Q32's product candidates for an adequate amount of time, and Q32 may be subject to claims challenging the inventorship, validity, enforceability of its patents and/or other intellectual property. Further, if Q32 encounters delays in its clinical trials or delays in obtaining regulatory approval, the period of time during which Q32 could market its product candidates under patent protection would be reduced. Thus, the patents that Q32 owns and licenses may not afford Q32 any meaningful competitive advantage.

Moreover, Q32 or Q32's licensors may be subject to a third-party pre-issuance submission of prior art to the USPTO or the European Patent Office or become involved in opposition, derivation, revocation, reexamination, *inter partes* review, post-grant review or interference proceedings challenging Q32's patent rights or the patent rights of others. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, Q32's patent rights, allow third parties to commercialize its product candidates and compete directly with Q32, without payment to Q32, or result in its inability to manufacture or commercialize drugs without infringing third-party patent rights. If the breadth or strength of protection provided by Q32's patents and patent applications is threatened, regardless of the outcome, it could dissuade companies from collaborating with Q32 to license, develop or commercialize its product candidates.

Patent terms may be inadequate to protect Q32's competitive position with respect to its product candidates for an adequate amount of time.

Patents have a limited lifespan. In the U.S., if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Once patents covering Q32's product candidates have expired, Q32 may be open to competition from competitive products, including generics or biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, Q32's owned and licensed patent portfolio may not provide Q32 with sufficient rights to exclude others from commercializing products similar or identical to Q32's.

If Q32 does not obtain patent term extension in the U.S. under the Hatch-Waxman Act and in foreign countries under similar legislation, thereby potentially extending the term of Q32's marketing exclusivity for its product candidates, if approved, its business may be materially harmed.

In the U.S., the patent term of a patent that covers an FDA-approved drug may be eligible for limited patent term extension, which permits patent term restoration as compensation for the patent term lost during the FDA regulatory review process. The Drug Price Competition and Patent Term Restoration Act of 1984, also known as the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the expiration of the patent. The length of the patent term extension is related to the length of time the drug is under regulatory review. However, a patent extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to an approved drug may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. Similar provisions are available in Europe and certain other non-U.S. jurisdictions to extend the term of a patent that covers an approved drug. While, in the future, if and when Q32's product candidates receive FDA approval, Q32 expects to apply for patent term extension on patents covering such product candidates, there is no guarantee that the applicable authorities will agree with Q32's assessment of whether such extension should be granted, and even if granted, the length of such extension. Q32 may not be granted patent term extension either in the U.S. or in any foreign country because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the term of extension, as well as the scope of patent protection during any such extension, afforded by the governmental authority could be less than Q32 requests. If Q32 is unable to obtain any patent term extension or the term of any such extension is less than Q32 requests, Q32's competitors may obtain approval of competing products following the expiration of Q32's patent rights, and Q32's business, financial condition, results of operations and prospects could be materially harmed.

Also, there are detailed rules and requirements regarding the patents that may be submitted to the FDA for listing in the Licensed Biological Products with Reference Product Exclusivity and Biosimilarity or Interchangeability Evaluations, or the Purple Book, a searchable, online database that contains information about biological products, including biosimilar and interchangeable biological products, licensed (approved) by the

FDA under the Public Health Service Act). Q32 may be unable to obtain patents covering its product candidates that contain one or more claims that satisfy the requirements for listing in the Purple Book. Even if Q32 submit a patent for listing in the Purple Book, the FDA may decline to list the patent, or a manufacturer of generic drugs may challenge the listing. If any of Q32's product candidates are approved and patents covering such product candidates not listed in the Purple Book, a manufacturer of generic drugs would not have to provide advance notice to Q32 of any abbreviated new drug application filed with the FDA to obtain permission to sell a generic version of such product candidates.

Changes to patent laws in the U.S. and other jurisdictions could diminish the value of patents in general, thereby impairing Q32's ability to protect its intellectual property.

Changes in either the patent laws or interpretation of patent laws in the U.S., including patent reform legislation such as the Leahy-Smith America Invents Act, or the Leahy-Smith Act, could increase the uncertainties and costs surrounding the prosecution of Q32's future owned and in-licensed patent applications and the maintenance, enforcement or defense of its owned and in-licensed issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These changes include provisions that affect the way patent applications are prosecuted, redefine prior art, provide more efficient and cost-effective avenues for competitors to challenge the validity of patents, and enable third-party submission of prior art to the USPTO during patent prosecution and additional procedures to challenge the validity of a patent at USPTO-administered post-grant proceedings, including post-grant review, inter partes review, and derivation proceedings. Assuming that other requirements for patentability are met, prior to March 2013, in the U.S., the first to invent the claimed invention was entitled to the patent, while outside the U.S., the first to file a patent application was entitled to the patent. After March 2013, under the Leahy-Smith Act, the U.S. transitioned to a first-to-file system in which, assuming that the other statutory requirements for patentability are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third party was the first to invent the claimed invention. As such, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of Q32's patent applications and the enforcement or defense of Q32's issued patents, all of which could have a material adverse effect on Q32's business, financial condition, results of operations and prospects.

In addition, the patent positions of companies in the development and commercialization of biologics and pharmaceuticals are particularly uncertain. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and altered the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the validity and enforceability of patents once obtained. Depending on future legislation by the U.S. Congress, decisions by the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could have a material adverse effect on Q32's patent rights and its ability to protect, defend and enforce its patent rights in the future. For example, in the case *Amgen v. Sanofi*, the Supreme Court held broad functional antibody claims invalid for lack of enablement. Similarly, in the case *Juno v. Kite*, the Federal Circuit held genus claims directed to CAR-T cells invalid for lack of written description for failing to provide disclosure commensurate with the scope of the claims. While Q32 does not believe that any of the patents licensed or owned by Q32 will be found invalid based on these decisions, Q32 cannot predict how future decisions by the courts, the U.S. Congress or the USPTO may impact the value of its patents. Similarly, changes in the patent laws of other jurisdictions could adversely affect Q32's ability to obtain and effectively enforce its patent rights, which would have a material adverse effect on Q32's business and financial condition.

Moreover, in 2012, the European Union Patent Package, or EU Patent Package, regulations were passed with the goal of providing a single pan-European Unitary Patent, or UP, covering all participating European Union member states, and a new European Unified Patent Court, UPC, for litigation involving European patents including all UPs. The EU Patent Package was implemented on June 1, 2023. As a result, all European patents, including those issued prior to ratification of the EU Patent Package, now by default automatically fall under the jurisdiction of the UPC. It is uncertain how the UPC will impact granted European patents in the biotechnology

and pharmaceutical industries. Q32's European patent applications, if issued, could be challenged in the UPC if not opted out. During the first seven years of the UPC's existence, the UPC legislation allows a patent owner to opt its European patents out of the jurisdiction of the UPC. Q32 may decide to opt out its future European patents from the UPC, but doing so may preclude Q32 from realizing the benefits of the UPC. Moreover, if Q32 does not meet all of the formalities and requirements for opt-out under the UPC before the prescribed deadlines, Q32's future European patents could remain under the jurisdiction of the UPC. The UPC will provide Q32's competitors with a new forum to centrally revoke its European patents that have not been opted out, and allow for the possibility of a competitor to obtain pan-European injunction. Such a loss of patent protection could have a material adverse impact on Q32's business and its ability to commercialize its technology and product candidates and, resultantly, on its business, financial condition, prospects and results of operations.

Q32 may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect its ability to develop and market its product candidates, if approved.

Q32 cannot guarantee that any of its patent searches or analyses, including the identification of relevant third party patents, the scope of said patent claims or the expiration of relevant patents, are complete, accurate or thorough, nor can Q32 be certain that Q32 have identified each and every third-party patent and pending application in the U.S. and abroad that is relevant to or necessary for the commercialization of its product candidates, if approved, in any jurisdiction. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Q32's interpretation of the relevance or the scope of a patent or a pending application may be incorrect. Q32's determination of the expiration date of any patent in the U.S. or abroad that Q32 considers relevant may be incorrect. Q32's failure to identify and correctly interpret relevant patents may negatively impact its ability to develop and market its product candidates.

In addition, because some patent applications in the U.S. may be maintained in secrecy until the patents are issued, patent applications in the U.S. and many foreign jurisdictions are typically not published until 18 months after filing, and publications in the scientific literature often lag behind actual discoveries, Q32 cannot be certain that others have not filed patent applications for technology covered by its issued patents or Q32's pending applications, or that Q32 were the first to invent the technology. Q32's competitors may have filed, and may in the future file, patent applications covering its product candidates or technology similar to Q32's. Any such patent application may have priority over its patent applications or patents, which could require Q32 to obtain rights to issued patents covering such product candidates or technologies.

Q32 may be subject to claims challenging the inventorship of its patents and other intellectual property.

Q32 may be subject to claims that former employees, collaborators or other third parties have an interest in its or any future licensors' patents or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. Inventorship disputes may arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing Q32's product candidates or as a result of questions regarding co-ownership of potential joint inventions. Litigation may be necessary to resolve these and other claims challenging inventorship or ownership. Alternatively, or additionally, Q32 may enter into agreements to clarify the scope of its rights in such intellectual property. If Q32 fails in defending any such claims, in addition to paying monetary damages, Q32 may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could adversely affect its business. Even if Q32 is successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

Q32's current or future licensors may have relied on third-party consultants or collaborators or on funds from third parties, such as the United States government, such that these licensors are not the sole and exclusive

owners of the patents Q32 in-licensed. If other third parties have ownership rights or other rights to Q32's in-licensed patents, they may be able to license such patents to its competitors, and Q32's competitors could market competing products and technology. This could adversely affect Q32's competitive position, business, financial condition, results of operations, and prospects.

In addition, while it is Q32's policy to require its employees, consultants, and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to Q32, it may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that Q32 regard as its own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached or challenged, and Q32 may be forced to bring claims against third parties, or defend claims that they may bring against Q32, to determine the ownership of what Q32 regards as its intellectual property. Such claims could adversely affect Q32's business, financial condition, results of operations, and prospects.

Q32 may be subject to claims asserting that its employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what Q32 regards as its own intellectual property.

Certain of Q32's employees, consultants or advisors have in the past and may in the future be employed at universities or other biotechnology or pharmaceutical companies, including Q32's competitors or potential competitors. Although Q32 tries to ensure that its employees, consultants and advisors do not use the proprietary information or know-how of others in their work for Q32, it may be subject to claims that these individuals or Q32 has used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If Q32 fails in defending any such claims, in addition to paying monetary damages, Q32 may lose valuable intellectual property rights. An inability to incorporate such technologies or features would harm Q32's business and may prevent Q32 from successfully commercializing its technologies or product candidates. In addition, Q32 may lose personnel as a result of such claims and any such litigation, or the threat thereof, may adversely affect Q32's ability to hire employees or contract with independent contractors. A loss of key personnel or their work product could hamper or prevent its ability to commercialize its technologies, or product candidates, which could adversely affect Q32's business, financial condition, results of operations and prospects. Even if Q32 is successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, Q32 may in the future be subject to claims by former employees, consultants or other third parties asserting an ownership right in its patents or patent applications. An adverse determination in any such submission or proceeding may result in loss of exclusivity or freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit its ability to stop others from using or commercializing similar technology and therapeutics, without payment to Q32, or could limit the duration of the patent protection covering its technologies and product candidates. Such challenges may also result in Q32's inability to develop, manufacture or commercialize its technologies and product candidates without infringing third-party patent rights. In addition, if the breadth or strength of protection provided by Q32's patents and patent applications is threatened, it could dissuade companies from collaborating with Q32 to license, develop or commercialize current or future technologies and product candidates. Any of the foregoing could adversely affect Q32's business, financial condition, results of operations and prospects.

Q32 may be involved in lawsuits to protect or enforce its patents or other intellectual property, which could be expensive, time-consuming and unsuccessful.

Competitors or other third parties may infringe Q32's patents or trademarks or misappropriate or violate its other intellectual property rights. To counter infringement, misappropriation or unauthorized use, Q32 or any future licensors may be required to file infringement or misappropriation claims, which can be expensive and

time consuming and divert the time and attention of Q32's management and scientific personnel. Q32 or any future licensors' pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Any claims Q32 asserts against perceived infringers could provoke these parties to assert counterclaims against Q32 alleging that Q32 infringed their patents, in addition to counterclaims asserting that Q32's patents or any future licensors' patents are invalid or unenforceable, or both. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement, insufficient written description, obviousness-type double patenting, or failure to claim patent-eligible subject matter. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution. The outcome following legal assertions of invalidity and unenforceability is unpredictable. In any patent infringement proceeding, there is a risk that a court will decide that a patent of Q32's or any future licensors is invalid or unenforceable, in whole or in part, and that Q32 does not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that Q32 does not have the right to stop the other party from using the invention at issue on the grounds that Q32's or any future licensors' patent claims do not cover the invention, or decide that the other party's use of Q32's or any future licensors' patented technology falls under the safe harbor to patent infringement under 35 U.S.C. §271(e)(1). An adverse outcome in a litigation or proceeding involving Q32's or any future licensors' patents could limit its ability to assert Q32's or any future licensors' patents against those parties or other competitors and may curtail or preclude its ability to exclude third parties from making and selling similar or competitive products. Any of these occurrences could adversely affect Q32's competitive position, and its business, financial condition, results of operations and prospects. Similarly, if Q32 asserts trademark infringement claims, a court may determine that the marks Q32 has asserted are invalid or unenforceable, or that the party against whom Q32 has asserted trademark infringement has superior rights to the marks in question. In this case, Q32 could ultimately be forced to cease use of such trademarks.

Even if Q32 establishes infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of Q32's confidential information could be compromised by disclosure during litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could adversely affect the price of shares of its common stock. Moreover, Q32 cannot assure you that it will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded. Even if Q32 ultimately prevails in such claims, the monetary cost of such litigation and the diversion of the attention of its management and scientific personnel could outweigh any benefit Q32 receives as a result of the proceedings.

Q32 may become involved in third-party claims of intellectual property infringement, misappropriation or violation, which may prevent or delay Q32's product discovery and development efforts.

Q32's commercial success depends in part on its avoiding infringement of the patents or trademarks and misappropriation or violation of other proprietary rights of third parties. There is a substantial amount of litigation involving the infringement of patents or trademarks and misappropriation or violation of other intellectual property rights in the biotechnology and pharmaceutical industries. Q32 may be exposed to, or threatened with, future litigation by third parties having patent, trademark or other intellectual property rights and who allege that its product candidates, uses and/or other proprietary technologies infringe their patents or trademarks or misappropriate or violate their other intellectual property rights. Numerous United States and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which Q32 is developing its product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk that Q32's product candidates may give rise to claims of infringement of the

patent rights of others increases. Moreover, it is not always clear to industry participants, including Q32, which patents exist which may be found to cover various types of drugs, products or their methods of use or manufacture. Thus, because of the large number of patents issued and patent applications currently pending in its fields, there may be a risk that third parties may allege they have patent rights which are infringed by its product candidates, technologies or methods.

If a third party alleges that Q32 infringed its patents or trademarks or misappropriate or violate its other intellectual property rights, Q32 may face a number of issues, including, but not limited to:

- patent and trademark infringement and other intellectual property misappropriation or violation which, regardless of merit, may be expensive and time-consuming to litigate and may divert Q32's management's attention from its core business;
- substantial damages for infringement, misappropriation or violation, which Q32 may have to pay if a court decides that the product candidate or technology at issue infringes on, misappropriates or violates the third-party's rights;
- an injunction prohibiting Q32 from manufacturing, marketing or selling its product candidates, or from using Q32's proprietary technologies, unless the third party agrees to license its patent rights to Q32;
- even if a license is available from a third party, Q32 may have to pay substantial royalties, upfront fees and other amounts, and/or grant cross-licenses to intellectual property rights protecting its product candidates or processes; and
- Q32 may be forced to try to redesign its product candidates or processes so they do not infringe third-party patents or trademarks or misappropriate or violate other third party intellectual property rights, an undertaking which may not be possible or which may require substantial monetary expenditures and time.

Some of Q32's competitors may be able to sustain the costs of complex patent litigation more effectively than Q32 can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on Q32's ability to raise the funds necessary to continue its operations or could otherwise have a material adverse effect on its business, results of operations, financial condition and prospects.

Third parties may assert that Q32 is employing their proprietary technology without authorization. Generally, conducting preclinical and clinical trials and other development activities in the United States is not considered an act of infringement. While Q32 may believe that patent claims or other intellectual property rights of a third party would not have a materially adverse effect on the commercialization of its product candidates, Q32 may be incorrect in this belief, or Q32 may not be able to prove it in litigation. In this regard, patents issued in the United States by law enjoy a presumption of validity that can be rebutted only with evidence that is "clear and convincing," a heightened standard of proof. There may be issued third-party patents of which Q32 is currently unaware with claims to compositions, formulations, methods of manufacture or methods for treatment related to the use or manufacture of Q32's product candidates. Patent applications can take many years to issue. There may be currently pending patent applications which may later result in issued patents that may be infringed by Q32's product candidates. Moreover, Q32 may fail to identify relevant patents or incorrectly conclude that a patent is invalid, not enforceable, exhausted, or not infringed by its activities. If any third-party patents, held now or obtained in the future by a third party, were found by a court of competent jurisdiction to cover the manufacturing process of Q32's product candidates, the holders of any such patents may be able to block Q32's ability to commercialize the product candidate unless Q32 obtains a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover any aspect of Q32's formulations, any combination therapies or patient selection methods, the holders of any such patent may be able to block Q32's ability to develop and commercialize the product candidate unless Q32 obtains a license or until such patent

expires or is finally determined to be held invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all. If Q32 is unable to obtain a necessary license to a third-party patent on commercially reasonable terms, or at all, Q32's ability to commercialize its product candidates may be impaired or delayed, which could in turn significantly harm its business. Even if Q32 obtains a license, it may be non-exclusive, thereby giving its competitors access to the same technologies licensed to Q32. In addition, if the breadth or strength of protection provided by Q32's patents and patent applications is threatened, it could dissuade companies from collaborating with Q32 to license, develop or commercialize current or future product candidates.

Parties making claims against Q32 may seek and obtain injunctive or other equitable relief, which could effectively block its ability to further develop and commercialize Q32's product candidates. Defense of these claims, regardless of their merit, could involve substantial litigation expense and would be a substantial diversion of employee resources from its business. In the event of a successful claim of infringement against Q32, it may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign Q32's infringing products, which may be impossible or require substantial time and monetary expenditure. Q32 cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, Q32 may need or may choose to obtain licenses from third parties to advance its research or allow commercialization of Q32's product candidates. Q32 may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, Q32 would be unable to further develop and commercialize its product candidates, which could harm its business significantly.

If Q32 is unable to protect the confidentiality of its trade secrets, Q32's business and competitive position would be harmed.

In addition to the protection afforded by patents, Q32 relies on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or which Q32 elects not to patent, processes for which patents are difficult to enforce and any other elements of Q32's discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. Q32 may also rely on trade secret protection as temporary protection for concepts that may be included in a future patent filing. However, trade secret protection will not protect Q32 from innovations that a competitor develops independently of its proprietary know-how. If a competitor independently develops a technology that Q32 protects as a trade secret and files a patent application on that technology, then Q32 may not be able to patent that technology in the future, may require a license from the competitor to use its own know-how, and if the license is not available on commercially viable terms, then Q32 may not be able to launch its product candidate. Additionally, trade secrets can be difficult to protect and some courts inside and outside the United States are less willing or unwilling to protect trade secrets. The laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws within the United States. Q32 may need to share its trade secrets and proprietary know-how with current or future partners, collaborators, contractors and others located in countries at heightened risk of theft of trade secrets, including through direct intrusion by private parties or foreign actors, and those affiliated with or controlled by state actors. As a result, Q32 may encounter significant problems in protecting and defending its intellectual property both in the United States and abroad. If Q32 is unable to prevent unauthorized material disclosure of its intellectual property to third parties, Q32 will not be able to establish or maintain a competitive advantage in its market, which could materially adversely affect its business, operating results and financial condition.

Monitoring unauthorized disclosure and detection of unauthorized disclosure is difficult, and Q32 does not know whether the steps Q32 has taken to prevent such disclosure are, or will be, adequate. If Q32 were to enforce a claim that a third party had illegally obtained and was using its trade secrets, it would be expensive and time-consuming, and the outcome would be unpredictable. These lawsuits may consume Q32's time and other resources even if Q32 is successful. For example, significant elements of Q32's products, including confidential aspects of sample preparation, methods of manufacturing, cell culturing conditions, computational-biological

algorithms, and related processes and software, are based on unpatented trade secrets. Although Q32 requires all of its employees to assign their inventions to Q32, and require all of its employees, consultants, advisors and any third parties who have access to its proprietary know-how, information or technology to enter into confidentiality agreements, Q32 cannot be certain that its trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to its trade secrets. If Q32's trade secrets are not adequately protected, its business, financial condition, results of operations and prospects could be adversely affected.

Q32 may be subject to damages resulting from claims that Q32 or its employees have wrongfully used or disclosed confidential information of Q32's competitors or are in breach of non-competition or non-solicitation agreements with its competitors.

As is common in the biotechnology and pharmaceutical industries, Q32 employs individuals and engage the services of consultants who previously or concurrently worked for other biotechnology or pharmaceutical companies, including Q32's competitors or potential competitors. Although no claims against Q32 are currently pending, Q32 may be subject to claims that these employees or Q32 has inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers, or that its consultants have used or disclosed trade secrets or other proprietary information of their former or current clients. Litigation may be necessary to defend against these claims. If Q32 fails in defending any such claims, in addition to paying monetary damages, Q32 may lose valuable intellectual property rights or personnel. Even if Q32 is successful in defending against such claims, litigation or other legal proceedings relating to intellectual property claims may cause Q32 to incur significant expenses and could distract its technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and, if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of Q32's common stock. This type of litigation or proceeding could substantially increase Q32's operating losses and reduce Q32's resources available for development activities. Q32 may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of Q32's competitors may be able to sustain the costs of such litigation or proceedings more effectively than Q32 can. Uncertainties resulting from the initiation and continuation of patent litigation or other intellectual property related proceedings could adversely affect Q32's ability to compete in the marketplace.

Q32 may not be able to effectively secure first-tier technologies when competing against other companies or investors.

Q32's future success may require that it acquire patent rights and know-how to new or complementary technologies. However, Q32 competes with a substantial number of other companies that may also compete for technologies Q32 desires. In addition, many venture capital firms and other institutional investors, as well as other biotechnology companies, invest in companies seeking to commercialize various types of emerging technologies. Many of these companies have greater financial, scientific and commercial resources than Q32. Therefore, Q32 may not be able to secure the technologies Q32 desires. Furthermore, should any commercial undertaking by Q32 prove to be successful, there can be no assurance competitors with greater financial resources will not offer competitive products and/or technologies.

If Q32's trademarks and trade names are not adequately protected, then Q32 may not be able to build name recognition in its markets of interest and its business may be adversely affected.

Q32's future registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. During trademark registration proceedings, Q32 may receive rejections of its applications by the USPTO or in other foreign jurisdictions. Although Q32 is given an opportunity to respond to such rejections, Q32 may be unable to overcome them. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an

opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against its trademarks, which may not survive such proceedings. Moreover, any name Q32 has proposed to use with its product candidate in the United States must be approved by the FDA, regardless of whether Q32 has registered it, or applied to register it, as a trademark. Similar requirements exist in Europe. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA or an equivalent administrative body in a foreign jurisdiction objects to any of Q32's proposed proprietary product names, Q32 may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. Furthermore, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark.

Q32 may not be able to protect its rights to these trademarks and trade names, which Q32 needs to build name recognition among potential partners or customers in its markets of interest. At times, competitors or other third parties may adopt trade names or trademarks similar to Q32's, thereby impeding its ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of Q32's registered or unregistered trademarks or trade names. Over the long term, if Q32 is unable to establish name recognition based on its trademarks and trade names, then Q32 may not be able to compete effectively, and its business may be adversely affected. Q32's efforts to enforce or protect its proprietary rights related to trademarks, trade names, domain name or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect Q32's business, financial condition, results of operations and prospects.

Numerous factors may limit any potential competitive advantage provided by Q32's intellectual property rights.

The degree of future protection afforded by Q32's intellectual property rights, whether owned or in-licensed, is uncertain because intellectual property rights have limitations, and may not adequately protect Q32's business, provide a barrier to entry against its competitors or potential competitors, or permit Q32 to maintain its competitive advantage. Moreover, if a third party has intellectual property rights that cover the practice of its technology, Q32 may not be able to fully exercise or extract value from its intellectual property rights. The factors that may limit any potential competitive advantage provided by Q32's intellectual property rights include:

- pending patent applications that Q32 may file or license may not lead to issued patents;
- patents, should they issue, that Q32 owns or licenses, may not provide Q32 with any competitive advantages, or may be challenged and held invalid or unenforceable;
- others may be able to develop and/or practice technology that is similar to Q32's technology or aspects of its technology but that is not covered by the claims of any of Q32's owned or in-licensed patents, should any such patents issue;
- third parties may compete with Q32 in jurisdictions where Q32 does not pursue and obtain patent protection;
- Q32 (or Q32's licensors) might not have been the first to make the inventions covered by a pending patent application that Q32 owns or licenses;
- Q32 (or Q32's licensors) might not have been the first to file patent applications covering a particular invention;
- others may independently develop similar or alternative technologies without infringing Q32's intellectual property rights;

- Q32 may not be able to obtain and/or maintain necessary licenses on reasonable terms or at all;
- third parties may assert an ownership interest in Q32's intellectual property and, if successful, such disputes may preclude Q32 from exercising exclusive rights, or any rights at all, over that intellectual property;
- Q32 may not be able to maintain the confidentiality of its trade secrets or other proprietary information;
- Q32 may not develop or in-license additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on Q32's business.

Should any of these events occur, they could significantly harm Q32's business and results of operation.

Risks Related to Government Regulation

The regulatory approval processes of the FDA and other comparable foreign regulatory authorities are lengthy, time-consuming and inherently unpredictable. If Q32 is not able to obtain, or if there are delays in obtaining, required regulatory approvals for its product candidates, Q32 will not be able to commercialize, or will be delayed in commercializing, such product candidates, and its ability to generate revenue will be materially impaired.

The process of obtaining regulatory approvals, both in the U.S. and abroad, is unpredictable, expensive and typically takes many years following commencement of clinical trials, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Q32 cannot commercialize product candidates in the U.S. without first obtaining regulatory approval from the FDA. Similarly, Q32 cannot commercialize product candidates outside of the U.S. without obtaining regulatory approval from comparable foreign regulatory authorities. Before obtaining regulatory approvals for the commercial sale of its product candidates, including its most advanced product candidates, bempikibart and ADX-097, Q32 must demonstrate through lengthy, complex and expensive preclinical and clinical trials that such product candidates are both safe and effective for each targeted indication. Securing regulatory approval also requires the submission of information about the drug manufacturing process to, and inspection of manufacturing facilities by, the relevant regulatory authority. Further, a product candidate may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude its obtaining marketing approval. The FDA and comparable foreign regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that its data are insufficient for approval and require additional preclinical, clinical or other data. A product candidate could be delayed in receiving, or fail to receive, regulatory approval for many reasons, including:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of its clinical trials;
- Q32 may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for its proposed indication;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- serious and unexpected drug-related side effects may be experienced by participants in its clinical trials or by individuals using drugs similar to a product candidate, which may result in inquiries from or actions by regulatory authorities to address such events;
- Q32 may be unable to demonstrate that a candidate's clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with its interpretation of data from preclinical studies or clinical trials;

- the data collected from clinical trials of a product candidate may not be acceptable or sufficient to support the submission of a BLA, NDA or similar marketing application to obtain regulatory approval in the U.S. or elsewhere, and Q32 may be required to conduct additional clinical trials;
- the FDA or the applicable foreign regulatory authority may disagree regarding the formulation, labeling and/or the specifications of a product candidate;
- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which Q32 may contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering Q32's clinical data insufficient for approval.

Of the large number of drugs in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in Q32 failing to obtain regulatory approval to market bempikibart, ADX-097 or other product candidates, which would significantly harm its business, results of operations and prospects.

If Q32 were to obtain approval, regulatory authorities may approve any such product candidate for fewer or more limited indications than Q32 requests, including failing to approve the most commercially promising indications, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. If Q32 is not able to obtain, or if there are delays in obtaining, required regulatory approvals for a product candidate, Q32 will not be able to commercialize, or will be delayed in commercializing, such product candidate and its ability to generate revenue may be materially impaired.

Inadequate funding for the FDA, the SEC and other government agencies, including from government shutdowns, or other disruptions to these agencies' operations, could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of Q32's business may rely, which could negatively impact its business.

The ability of the FDA to review and approve regulatory submissions can be affected by a variety of factors, including government budget and funding levels, the ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which Q32's operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new product candidates to be reviewed and/or approved by necessary government agencies, which would adversely affect Q32's business. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process regulatory submissions, which could have a material adverse effect on Q32's business. Further, future government shutdowns could impact the company's ability to access the public markets and obtain necessary capital to properly capitalize and continue its operations.

Q32 may not be able to meet requirements for the chemistry, manufacturing and control of its product candidates.

In order to receive approval of its products by the FDA and comparable foreign regulatory authorities, Q32 must show that Q32 and its contract manufacturing partners are able to characterize, control and manufacture its

drug and biologic products safely and in accordance with regulatory requirements. This includes synthesizing the active ingredient, developing an acceptable formulation, performing tests to adequately characterize the formulated product, documenting a repeatable manufacturing process and demonstrating that its products meet stability requirements. Meeting these chemistry, manufacturing and control, or CMC, requirements is a complex task that requires specialized expertise. If Q32 is not able to meet the CMC requirements, Q32 may not be successful in advancing its clinical studies or obtaining regulatory approvals for its product candidates.

Q32 has and may in the future conduct clinical trials for its product candidates at sites outside the U.S., and the FDA may not accept data from trials conducted in such locations.

Q32 has and may in the future choose to conduct clinical trials for ADX-097 or other product candidates outside the U.S. Although the FDA may accept data from clinical trials conducted outside the U.S., acceptance of this data is subject to conditions imposed by the FDA. For example, the clinical trial must be well designed and conducted and performed by qualified investigators in accordance with ethical principles. The trial population must also adequately represent the U.S. population, and the data must be applicable to the U.S. population and U.S. medical practice in ways that the FDA deems clinically meaningful. In addition, while these clinical trials are subject to the applicable local laws, FDA acceptance of the data will depend on its determination that the trials also complied with all applicable U.S. laws and regulations. If the FDA does not accept the data from any trial that Q32 conducts outside the U.S., it would likely result in the need for additional trials, which would be costly and time-consuming and would delay or permanently halt its development of the applicable product candidates. Even if the FDA accepted such data, it could require Q32 to modify its planned clinical trials to receive clearance to initiate such trials in the U.S. or to continue such trials once initiated.

Other risks inherent in conducting international clinical trials include:

- the need to comply with foreign regulatory requirements, differences in healthcare services, and differences in cultural customs that could restrict or limit its ability to conduct its clinical trials;
- administrative burdens of conducting clinical trials under multiple sets of foreign regulations;
- foreign exchange fluctuations;
- diminished protection of intellectual property in some countries; and
- political and economic risks relevant to foreign countries.

Q32's product candidates for which it intends to seek approval as biologics may face competition sooner than anticipated.

The Biologics Price Competition and Innovation Act of 2009, or BPCIA, was enacted as part of the ACA to establish an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on its similarity to an approved biologic. Under the BPCIA, an application for a highly similar or "biosimilar" product may not be submitted to the FDA until four years following the date that the reference product was first approved by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first approved. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product.

Q32's investigational biological products, if approved, could be considered reference products entitled to the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider a product candidate to be reference products

for competing products, potentially creating the opportunity for competition sooner than anticipated. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of litigation. Moreover, the extent to which a biosimilar, once approved, will be substituted for any reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing. The approval of a biosimilar of any of Q32's product candidates could have a material adverse impact on its business due to increased competition and pricing pressure.

Even if Q32 receives regulatory approval of bempikibart, ADX-097 or other product candidates, Q32 will be subject to extensive ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and Q32 may be subject to penalties if Q32 fails to comply with regulatory requirements or experience unanticipated problems with its product candidates.

Any regulatory approvals that Q32 may receive for bempikibart, ADX-097 or other product candidates will require the submission of reports to regulatory authorities and surveillance to monitor the safety and efficacy of such product candidates, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a risk evaluation and mitigation strategy in order to approve a product candidate, which could entail requirements for a medication guide, physician training and communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or comparable foreign regulatory authorities approve a product candidate, the products and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale, distribution, import and export will be subject to comprehensive regulation by the FDA and other regulatory agencies in the U.S. and by comparable foreign regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as ongoing compliance with cGMPs and GCPs for any clinical trials that Q32 conducts following approval. In addition, manufacturers of drug products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with cGMPs.

If Q32 or a regulatory authority discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facilities where the product is manufactured, a regulatory authority may impose restrictions on that product, the manufacturing facility or Q32, including requiring recall or withdrawal of the product from the market or suspension of manufacturing, restrictions on its ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials, restrictions on the manufacturing process, warning or untitled letters, civil and criminal penalties, injunctions, product seizures, detentions or import bans, voluntary or mandatory publicity requirements and imposition of restrictions on operations, including costly new manufacturing requirements. The occurrence of any event or penalty described above may inhibit Q32's ability to commercialize bempikibart, ADX-097 or other product candidates and generate revenue and could require Q32 to expend significant time and resources in response and could generate negative publicity.

Q32 may face difficulties from healthcare legislative reform measures.

Existing regulatory policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of bempikibart, ADX-097 or other product candidates. Q32 cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the U.S. or abroad. If Q32 is slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if Q32 is not able to maintain regulatory compliance, Q32 may lose any marketing approval that Q32 may have obtained and Q32 may not achieve or sustain profitability. See the section titled "*Q32's Business-Government Regulation-Healthcare Reform*"

elsewhere in this proxy statement/prospectus for a more detailed description of healthcare reforms measures that may prevent Q32 from being able to generate revenue, attain profitability, or commercialize product candidates.

The continuing efforts of the government, insurance companies, managed care organizations and other payers of healthcare services to contain or reduce costs of healthcare may adversely affect:

- the demand for any of Q32's product candidates, if approved;
- the ability to set a price that Q32 believes is fair for any of its product candidates, if approved;
- Q32's ability to generate revenues and achieve or maintain profitability;
- the level of taxes that Q32 is required to pay; and
- the availability of capital.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical and biologic products. Q32 cannot be sure whether additional legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of Q32's product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject Q32 to more stringent product labeling and post-marketing testing and other requirements.

Q32 expects that the healthcare reform measures that have been adopted and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that Q32 receives for any approved product and could seriously harm its future revenues. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent Q32 from being able to generate revenue, attain profitability or commercialize its products.

Q32's business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose Q32 to penalties.

Q32's business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers may expose Q32 to fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which Q32 conducts its operations, including how Q32 researches, markets, sells and distributes its product candidates, if approved. See the section titled "*Q32's Business-Government Regulation-Other Healthcare Laws and Compliance Requirements*" elsewhere in this proxy statement/prospectus for a more detailed description of the laws that may affect its ability to operate.

Ensuring that its internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. If Q32's operations are found to be in violation of any of these laws or any other governmental laws and regulations that may apply to it, Q32 may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of its operations. Further, defending against any such actions can be costly and time-consuming and may require significant personnel resources. Therefore, even if Q32 is successful in defending against any such actions that may be brought against Q32, its business may be impaired.

Even if Q32 is able to commercialize bempikibart, ADX-097 or other product candidates, due to unfavorable pricing regulations and/or third-party coverage and reimbursement policies, Q32 may not be able to offer such products at competitive prices which would seriously harm its business.

Q32 intends to seek approval to market bempikibart, ADX-097 and other product candidates in both the U.S. and in selected foreign jurisdictions. If Q32 obtains approval in one or more foreign jurisdictions for such product candidates, Q32 will be subject to rules and regulations in those jurisdictions. Its ability to successfully commercialize any product candidates that Q32 may develop will depend in part on the extent to which reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for medications. These entities may create preferential access policies for a competitor's product, including a branded or generic/biosimilar product, over its products in an attempt to reduce their costs, which may reduce its commercial opportunity. Additionally, if any of its product candidates are approved and Q32 is found to have improperly promoted off-label uses of those programs, Q32 may become subject to significant liability, which would materially adversely affect its business and financial condition. See the sections titled "*Business-Government Regulation-Coverage and Reimbursement*" and "*-Regulation in the EU*" elsewhere in this proxy statement/prospectus for a more detailed description of the government regulations and third-party payor practices that may affect Q32's ability to commercialize its product candidates.

Q32 is subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Q32 can face criminal liability and other serious consequences for violations, which can harm its business.

Q32 is subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which Q32 conducts activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to or from recipients in the public or private sector. Q32 may engage third parties to sell products outside the U.S., to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. Q32 has direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. Q32 can be held liable for the corrupt or other illegal activities of its employees, agents, contractors, and other collaborators, even if Q32 does not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Governments outside the U.S. tend to impose strict price controls, which may adversely affect Q32's revenue, if any.

In some countries, particularly Member States of the EU, the pricing of prescription drugs is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after receipt of marketing approval for a therapeutic. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing

used by various EU Member States and parallel distribution, or arbitrage between low-priced and high-priced Member States, can further reduce prices. To obtain coverage and reimbursement or pricing approvals in some countries, Q32 or current or future collaborators may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of a product to other available therapies in order to obtain or maintain reimbursement or pricing approval. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If reimbursement of any product approved for marketing is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, its business, financial condition, results of operations or prospects could be materially and adversely affected.

Q32 may seek one or more designations or expedited programs for its product candidates, but may not receive such designations or be allowed to proceed on expedited program pathways, and even if Q32 does receive such designations and proceed on such expedited program pathways in the future, such designations or expedited programs may not lead to a faster development or regulatory review or approval process, and each designation does not increase the likelihood that any of Q32's product candidates will receive regulatory approval in the U.S.

Q32 may seek fast track designation for some of its product candidates. If a drug is intended for the treatment of a serious or life-threatening condition and nonclinical or clinical data for the drug demonstrates the potential to address an unmet medical need for such a condition, the drug sponsor may apply for fast track designation. The FDA has broad discretion whether to grant this designation, so even Q32 believes a particular product candidate is eligible for this designation, the company cannot provide assurance that the FDA would decide to grant this designation. Even if Q32's candidates receive fast track designation, these candidates may not experience a faster development process, review or approval compared to conventional FDA procedures. The FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from the clinical development program. Fast track designation alone does not guarantee qualification for the FDA's priority review procedures.

Q32 may seek a breakthrough therapy designation for some of its product candidates. A breakthrough therapy is defined as a drug that is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For drugs that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Drugs designated as breakthrough therapies by the FDA may also be eligible for priority review and accelerated approval. Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if Q32 believes one of its product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to therapies considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of Q32's product candidates qualify as breakthrough therapies, the FDA may later decide that such product candidates no longer meet the conditions for qualification or decide that the time for FDA review or approval will not be shortened.

In the future, Q32 may also seek approval of product candidates under the FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it is designed to treat a serious or life-threatening disease or condition and generally provides a meaningful advantage over available therapies upon a determination that the product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as irreversible morbidity or mortality. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory

measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit. The accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the drug's clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022, or the FDORA, the FDA is permitted to require, as appropriate, that a post-approval confirmatory study or studies be underway prior to approval or within a specified time after the date of accelerated approval was granted. FDORA also requires sponsors to send updates to the FDA every 180 days on the status of such studies, including progress toward enrollment targets, and the FDA must promptly post this information publicly. FDORA also gives the FDA increased authority to withdraw approval of a drug or biologic granted accelerated approval on an expedited basis if the sponsor fails to conduct such studies in a timely manner, send the necessary updates to the FDA, or if such post-approval studies fail to verify the drug's predicted clinical benefit. Under FDORA, the FDA is empowered to act, such as issuing fines, against companies that fail to conduct with due diligence any post-approval confirmatory study or submit timely reports to the agency on their progress. In addition, for products being considered for accelerated approval, the FDA generally requires, unless otherwise informed by the Agency, that all advertising and promotional materials intended for dissemination or publication within 120 days of regulatory approval be submitted to the Agency for review during the pre-approval review period. There can be no assurance that the FDA would allow any of the product candidates Q32 may develop to proceed on an accelerated approval pathway, and even if the FDA did allow such pathway, there can be no assurance that such submission or application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. Moreover, even if Q32 received accelerated approval, any post-approval studies required to confirm and verify clinical benefit may not show such benefit, which could lead to withdrawal of any approvals the company has obtained. Receiving accelerated approval does not assure that the product's accelerated approval will eventually be converted to a traditional approval.

If the FDA determines that a product candidate offers a treatment for a serious condition and, if approved, the product would provide a significant improvement in safety or effectiveness, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review an application is six months, rather than the standard review period of ten months. Q32 may request priority review for its product candidates. The FDA has broad discretion with respect to whether to grant priority review status to a product candidate, so even if Q32 believes a particular product candidate is eligible for such designation or status, the FDA may decide not to grant it. Moreover, a priority review designation does not necessarily result in an expedited regulatory review or approval process or necessarily confer any advantage with respect to approval compared to conventional FDA procedures. Receiving priority review from the FDA does not guarantee approval within the six-month review cycle or at all.

Q32 may pursue orphan drug designation for certain of its product candidates, but may not be able to obtain such designation, or obtain or maintain the benefits of such designation including orphan drug exclusivity, and even if Q32 does obtain orphan designation for its product candidates, any orphan drug exclusivity it receives may not prevent regulatory authorities from approving other competing products.

Q32 may seek orphan drug designation for some of its product candidates; however, Q32 may never receive such designation. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug or biologic intended to treat a rare disease or condition, defined as a patient population of fewer than 200,000 in the U.S., or a patient population of 200,000 or more in the U.S. where there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the U.S. Orphan drug designation must be requested before submitting an NDA or a BLA. A similar regulatory scheme governs orphan products in the EU.

Orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and application fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. In addition, if a product candidate with an orphan drug designation subsequently receives the first regulatory approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the FDA from approving another marketing application for the same product for the same therapeutic indication for seven years.

Even if Q32 obtains orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different products can be approved for the same condition. In addition, even after an orphan drug is approved, the FDA can subsequently approve the same product for the same condition if the FDA concludes that the later product is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care. Orphan drug exclusivity may also be lost if the FDA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of the patients with the rare disease or condition. Further, even if Q32 obtains orphan drug designation, the company may not be the first to obtain regulatory approval for any indication due to the uncertainties associated with developing pharmaceutical products.

The FDA may further reevaluate the Orphan Drug Act and its regulations and policies. Additionally, legislation has been proposed by the European Commission that, if implemented, has the potential in some cases to shorten the ten-year period of orphan marketing exclusivity. It is unclear if, when, or how the FDA or other regulatory authorities may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect Q32's business. Depending on what changes the FDA or other regulatory authorities may make to their orphan drug regulations and policies, the company's business could be adversely impacted.

Q32 may be subject to claims that Q32 or its employees or consultants have wrongfully used or disclosed alleged trade secrets of employees' or consultants' former employers or their clients. These claims may be costly to defend and if Q32 does not successfully do so, it may be required to pay monetary damages and may lose valuable intellectual property rights or personnel.

Many of Q32's employees were previously employed at universities or biotechnology or pharmaceutical companies, including its competitors or potential competitors. Although no claims against Q32 are currently pending, it may be subject to claims that these employees or Q32 have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. If Q32 fails in defending such claims, in addition to paying monetary damages, Q32 may lose valuable intellectual property rights or personnel. A loss of key research personnel or their work product could hamper Q32's ability to develop and commercialize, or prevent it from developing and commercializing, its product candidates, which could severely harm its business. Even if Q32 is successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

Risks Related to Q32's Third Party Relationships

Q32 currently relies and expects to rely on third parties in the future to conduct its clinical trials and some aspects of its research, as well as some aspects of its delivery methods, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research or testing.

Q32 currently, and expects to continue to, rely on third parties, such as but not limited to CROs, clinical data management organizations, medical institutions, preclinical laboratories and clinical investigators, to conduct some aspects of its research. For example, Q32 may rely on a third party to supply components of its product candidates, or to conduct some of its preclinical animal experiments. Any of these third parties may terminate their engagements with Q32 at any time under certain criteria. If Q32 needs to enter into alternative arrangements, it may delay its product research and development activities.

Q32's reliance on these third parties for research and development activities will reduce its control over these activities but will not relieve Q32 of its responsibilities. For example, Q32 will remain responsible for ensuring that each of its preclinical studies and clinical trials is conducted in accordance with the general investigational plan and protocols. Moreover, the FDA, the EMA and other regulatory authorities require Q32 and the study sites and investigators Q32 works with to comply with standards, commonly referred to as GLPs and GCPs for conducting, recording and reporting the results of preclinical studies and clinical trials to assure, amongst other things, that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected.

Q32 has collaborations and license agreements with third parties, including its existing license agreements with BMS and Colorado and expects to collaborate with third parties in the future. Q32 may not be successful in finding strategic collaborators for continuing development of certain of its future product candidates or successfully commercializing or competing in the market for certain indications.

Q32 currently collaborates with third-parties with respect to bempikibart and ADX-097. If any of Q32's collaborators, licensors or licensees experience delays in performance of, or fail to perform their obligations under, their applicable agreements with Q32, disagree with its interpretation of the terms of such agreement or terminate their agreement with Q32, its pipeline of product candidates would be adversely affected. If Q32 fails to comply with any of the obligations under its collaborations or license agreements, including payment terms and diligence terms, its collaborators, licensors or licensees may have the right to terminate its agreements, in which event Q32 may lose intellectual property rights, market or sell the products covered by such agreements or may face other penalties under such agreements. Q32's collaborators, licensors or licensees may also fail to properly maintain or defend the intellectual property Q32 has licensed from them, or infringe upon other third party intellectual property rights, leading to the potential invalidation of such third party's intellectual property or subjecting Q32 to litigation or arbitration, any of which would be time-consuming and expensive and could harm Q32's ability to develop or commercialize its product candidates. Further, any of these relationships may require Q32 to increase its near and long-term expenditures, issue securities that dilute its existing stockholders or disrupt its management and business. In addition, collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with Q32's product candidates and products if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than under the agreements with Q32.

In the future, Q32 may decide to collaborate with entities such as, but not limited to, non-profit organizations, universities, pharmaceutical and biotechnology companies for the development and potential commercialization of existing and new product candidates. Q32 faces significant competition in seeking appropriate collaborators. Whether Q32 reaches a definitive agreement for a collaboration will depend, among other things, upon its assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of several factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA or similar regulatory authorities outside the U.S., the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing drugs, the existence of uncertainty with respect to Q32's ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with Q32 for its product candidate. The terms of any additional collaborations or other arrangements that Q32 may establish may not be favorable to Q32. Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

Q32 may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If Q32 is unable to do so, it may have to curtail the development of the product candidate for which Q32 is seeking to

collaborate, reduce or delay its development program or one or more of Q32's other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase its expenditures and undertake development or commercialization activities at its own expense. If Q32 elects to increase its expenditures to fund development or commercialization activities on its own, Q32 may need to obtain additional capital, which may not be available to it on acceptable terms or at all. If Q32 does not have sufficient funds, it may not be able to further develop its product candidates or bring them to the market and generate product revenue.

The success of any potential collaboration arrangements will depend heavily on the efforts and activities of Q32's collaborators. Collaborators generally have significant discretion in determining the efforts and resources that they will apply to these collaborations. Disagreements between parties to a collaboration arrangement regarding clinical development and commercialization matters can lead to delays in the development process or commercializing the applicable product candidate and, in some cases, termination of such collaboration arrangements. These disagreements can be difficult to resolve if neither of the parties has final decision-making authority. Collaborations with pharmaceutical or biotechnology companies and other third parties often are terminated or allowed to expire by the other party. Any such termination or expiration would adversely affect Q32 financially and could harm its business reputation.

Future acquisitions or strategic alliances could disrupt Q32's business and harm its financial condition and results of operations.

Q32 may acquire additional businesses or drugs, form strategic alliances or create joint ventures with third parties that it believes will complement or augment its existing business. If Q32 acquires businesses with promising markets or technologies, it may not be able to realize the benefit of acquiring such businesses if Q32 is unable to successfully integrate them with its existing operations and company culture. Q32 may encounter numerous difficulties in developing, manufacturing and marketing any new drugs resulting from a strategic alliance or acquisition that delay or prevent it from realizing their expected benefits or enhancing its business. Q32 cannot assure you that, following any such acquisition, it will achieve the expected synergies to justify the transaction. The risks Q32 faces in connection with acquisitions, include:

- diversion of management time and focus from operating its business to addressing acquisition integration challenges;
- coordination of research and development efforts;
- retention of key employees from the acquired company;
- changes in relationships with strategic partners because of product acquisitions or strategic positioning resulting from the acquisition;
- cultural challenges associated with integrating employees from the acquired company into Q32;
- the need to implement or improve controls, procedures, and policies at a business that prior to the acquisition may have lacked sufficiently effective controls, procedures and policies;
- liability for activities of the acquired company before the acquisition, including intellectual property infringement claims, violation of laws, commercial disputes, tax liabilities, and other known liabilities;
- unanticipated write-offs or charges; and
- litigation or other claims in connection with the acquired company, including claims from terminated employees, customers, former stockholders or other third parties.

Q32's failure to address these risks or other problems encountered in connection with its past or future acquisitions or strategic alliances could cause it to fail to realize the anticipated benefits of these transactions, cause it to incur unanticipated liabilities and harm the business generally. There is also a risk that future acquisitions will result in the incurrence of debt, contingent liabilities, amortization expenses or incremental operating expenses, any of which could harm Q32's financial condition or results of operations.

Q32 relies, and anticipates that it will rely, on third parties to assist in designing, conducting, supervising and monitoring its preclinical studies and clinical trials, and if those third parties perform in an unsatisfactory manner, it may harm its business.

Q32 relies, and anticipates that it will rely, on third party clinical investigators, CROs, clinical data management organizations and consultants to help design, conduct, supervise and monitor preclinical studies and clinical trials of its product candidates. Because Q32 relies on third parties and does not have the ability to conduct preclinical studies or clinical trials independently, Q32 has less control over the timing, quality and other aspects of preclinical studies and clinical trials than it would if it conducted them on its own, including Q32's inability to control whether sufficient resources are applied to its programs. If any of Q32's CROs are acquired or consolidated, these concerns are likely to be exacerbated and its preclinical studies or clinical trials may be further impacted due to potential integration, streamlining, staffing and logistical changes. These investigators, CROs and consultants are not Q32 employees and Q32 has limited control over the amount of time and resources that they dedicate to its programs. These third parties may have contractual relationships with other entities, some of which may be Q32's competitors, which may draw time and resources from Q32 programs. Further, these third parties may not be diligent, careful or timely in conducting Q32's preclinical studies or clinical trials, resulting in the preclinical studies or clinical trials being delayed or unsuccessful.

If Q32 cannot contract with acceptable third parties on commercially reasonable terms, or at all, or if these third parties do not carry out their contractual duties, satisfy legal and regulatory requirements for the conduct of preclinical studies or clinical trials or meet expected deadlines, Q32's preclinical and clinical development programs could be delayed and otherwise adversely affected. In all events, Q32 is responsible for ensuring that each of its preclinical studies and clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. The FDA and other health authorities require certain preclinical studies to be conducted in accordance with GLP, and clinical trials to be conducted in accordance with GCP, including conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of clinical trial participants are protected. If Q32 or its CROs fail to comply with these requirements, the data generated in Q32's clinical trials may be deemed unreliable or uninterpretable and the FDA and other health authorities may require Q32 to perform additional clinical trials. Q32's reliance on third parties that it does not control does not relieve it of these responsibilities and requirements. In the U.S., Q32 is also required to register certain clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions. Any such event could adversely affect Q32's business, financial condition, results of operations and prospects.

Q32 relies on third parties in the supply and manufacture of its product candidates for its research, preclinical and clinical activities, and may do the same for commercial supplies of its product candidates.

Q32 has not yet manufactured its product candidates on a commercial scale and may not be able to do so for any of its product candidates. Q32 currently relies on third parties in the supply and manufacture of materials for its research, preclinical and clinical activities and may continue to do so for the foreseeable future, including if it received regulatory approval for any product candidate. Q32 may do the same for the commercial supply of its drug product, if any. Q32 uses third parties to perform additional steps in the manufacturing process, such as the filling, finishing and labeling of vials and storage and shipping of its product candidates and Q32 expects to do so for the foreseeable future. There can be no assurance that Q32's supply of research, preclinical and clinical development drug candidates and other materials will not be limited, interrupted or restricted or will be of satisfactory quality or continue to be available at acceptable prices. Replacement of any of the third parties Q32 may engage could require significant effort and expertise because there may be a limited number of qualified replacements. In addition, raw materials, reagents, and components used in the manufacturing process, particularly those for which Q32 has no other source or supplier, may not be available, may not be suitable or acceptable for use due to material or component defects, or may introduce variability into the supply of its product candidates. Furthermore, with the increase of companies developing fusion protein based antibodies and/

or monoclonal antibodies, there may be increased competition for the supply of the raw materials that are necessary to make Q32's fusion protein based antibodies and/or monoclonal antibodies, which could severely impact the manufacturing of its product candidates.

Q32 may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited, and they must be acceptable to the FDA or approved by foreign regulatory authorities. Suppliers and manufacturers, including Q32, must meet applicable manufacturing requirements, including compliance with cGMP regulations, and undergo rigorous facility and process validation tests required by regulatory authorities to comply with regulatory standards. In the event that any of Q32's suppliers or manufacturers fail to comply with such requirements or to perform their obligations to Q32 in relation to quality, timing or otherwise, some of which may be out of their or Q32's control, or if Q32's supply of components or other materials becomes limited or interrupted for other reasons, Q32 may be forced to increase the manufacturing of the materials itself, for which its currently has limited capabilities and resources, or enter into an agreement with another third party, which it may not be able to do on reasonable terms, if at all. Any interruption of the development or operation of the manufacturing of Q32's product candidates, such as order delays for equipment or materials, equipment malfunction, quality control and quality assurance issues, regulatory delays and possible negative effects of such delays on supply chains and expected timelines for product availability, production yield issues, shortages of qualified personnel, discontinuation of a facility or business or failure or damage to a facility resulting from natural disasters, could result in the cancellation of shipments, loss of product in the manufacturing process or a shortfall in available product candidates or materials. In some cases, the technical skills or technology required to manufacture Q32's product candidates may be unique or proprietary to the original manufacturer and Q32 may have difficulty, or there may be contractual restrictions prohibiting Q32 from, transferring such skills or technology to another third party and a feasible alternative may not exist. These factors would increase Q32's reliance on such manufacturer or require it to obtain a license from such manufacturer in order to have another third-party manufacture Q32's product candidates. If Q32 is required to change manufacturers for any reason, Q32 will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect Q32's ability to develop product candidates in a timely manner or within budget.

Q32 may also be required to enter into long-term manufacturing agreements that contain exclusivity provisions and/or substantial termination penalties which could have a material adverse effect on its business prior to or after commercialization of any of its product candidates. If Q32 is unable to obtain or maintain third-party manufacturing for product candidates, or to do so on commercially reasonable terms, Q32 may not be able to develop and commercialize its product candidates successfully. Failure to execute Q32's manufacturing requirements, either by Q32 or by one of its third-party vendors, could adversely affect Q32's business.

Q32's relationships with healthcare providers, physicians, and third-party payors will be subject to applicable anti-kickback, fraud and abuse, anti-bribery and other healthcare laws and regulations, which could expose it to criminal sanctions, civil penalties, contractual damages, reputational harm, and diminished profits and future earnings.

Healthcare providers, physicians, and third-party payors play a primary role in the recommendation and prescription of any product candidates that Q32 may develop for which it obtains marketing approval. Q32's future arrangements with third-party payors and customers may expose it to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which Q32 markets, sells, and distributes its medicines for which it obtains marketing approval. Restrictions under applicable federal and state healthcare laws and regulations listed in the section above titled "*Risk Factors—Risks Related to Government Regulation,*" including certain laws and regulations applicable only if Q32 has marketed products.

Some state laws also require pharmaceutical companies to comply with specific compliance standards, restrict financial interactions between pharmaceutical companies and healthcare providers or require

pharmaceutical companies to report information related to payments to health care providers or marketing expenditures.

Efforts to ensure that Q32's business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Given the breadth of the laws and regulations, limited guidance for certain laws and regulations and evolving government interpretations of the laws and regulations, governmental authorities may possibly conclude that Q32's business practices may not comply with healthcare laws and regulations. If Q32's operations are found to be in violation of any of the laws described above or any other government regulations that apply to Q32, it may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, imprisonment, and the curtailment or restructuring of Q32's operations, any of which could adversely affect its business, financial condition, results of operations, and prospects.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order, or use of medicinal products is prohibited in the EU. The provision of benefits or advantages to physicians is also governed by the national anti-bribery laws of EU Member States, such as the U.K. Bribery Act 2010. Infringement of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain EU Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual EU Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the EU Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Risks Related to Q32's Business, Personnel and Operations

Q32's future growth may depend, in part, on its ability to operate in foreign markets, where Q32 would be subject to additional regulatory burdens and other risks and uncertainties.

Q32's future growth may depend, in part, on its ability to develop and commercialize bempikibart, ADX-097 or other product candidates in foreign markets for which Q32 may rely on collaboration with third parties. Q32 is not permitted to market or promote any product candidates before Q32 receives regulatory approval from the applicable foreign regulatory authority and may never receive such regulatory approval for any product candidates. To obtain separate regulatory approval in many other countries, Q32 must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of bempikibart, ADX-097 or other product candidates, and Q32 cannot predict success in these jurisdictions. If Q32 fails to comply with the regulatory requirements in international markets or to receive applicable marketing approvals, its target market will be reduced and its ability to realize the full market potential of bempikibart, ADX-097 or other product candidates will be harmed, and its business will be adversely affected. Moreover, even if Q32 obtains approval of bempikibart, ADX-097 or other product candidates and ultimately commercialize such product candidates in foreign markets, Q32 would be subject to the risks and uncertainties, including the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements and reduced protection of intellectual property rights in some foreign countries.

Q32's employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, CMOs, suppliers and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

Q32 is exposed to the risk that its employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, CMOs, suppliers and vendors acting for or on its behalf may engage

in misconduct or other improper activities. It is not always possible to identify and deter misconduct by these parties and the precautions Q32 takes to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting Q32 from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations.

Q32's internal computer systems, or those of any of its CROs, manufacturers, other contractors, third party service providers or consultants or potential future collaborators, may fail or suffer security or data privacy breaches or other unauthorized or improper access to, use of, or destruction of its proprietary or confidential data, employee data or personal data, which could result in additional costs, loss of revenue, significant liabilities, harm to its brand and material disruption of its operations.

Despite the implementation of security measures in an effort to protect systems that store its information, given their size and complexity and the increasing amounts of information maintained on its internal information technology systems and those of its third-party CROs, other contractors (including sites performing its clinical trials), third party service providers and supply chain companies, and consultants, as well as other partners, these systems are potentially vulnerable to breakdown or other damage or interruption from service interruptions, system malfunction, natural disasters, terrorism, war and telecommunication and electrical failures, as well as security breaches from inadvertent or intentional actions by its employees, contractors, consultants, business partners and/or other third parties, or from cyber-attacks by malicious third parties, which may compromise its system infrastructure or lead to the loss, destruction, alteration or dissemination of, or damage to, its data. To the extent that any disruption or security breach were to result in a loss, destruction, unavailability, alteration or dissemination of, or damage to, Q32's data or applications, or for it to be believed or reported that any of these occurred, Q32 could incur liability and reputational damage and the development and commercialization of bempikibart, ADX-097 or other product candidates could be delayed.

As its employees work remotely and utilize network connections, computers, and devices outside its premises or network, including working at home, while in transit and in public locations, there are risks to its information technology systems and data. Additionally, business transactions (such as acquisitions or integrations) could expose Q32 to additional cybersecurity risks and vulnerabilities, as its systems could be negatively affected by vulnerabilities present in acquired or integrated entities' systems and technologies.

While Q32 has implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. Q32 may be unable in the future to detect vulnerabilities in its information technology systems because such threats and techniques change frequently, are often sophisticated in nature, and may not be detected until after a security incident has occurred. Further, Q32 may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities. Applicable data privacy and security obligations may require Q32 to notify relevant stakeholders of security incidents. Such disclosures are costly, and the disclosure or the failure to comply with such requirements could lead to adverse consequences.

Q32 relies on third-party service providers and technologies to operate critical business systems to process sensitive information in a variety of contexts. Its ability to monitor these third parties' information security practices is limited, and these third parties may not have adequate information security measures in place. If its third-party service providers experience a security incident or other interruption, Q32 could experience adverse consequences. While Q32 may be entitled to damages if its third-party service providers fail to satisfy their privacy or security-related obligations to Q32, any award may be insufficient to cover its damages, or Q32 may be unable to recover such award. In addition, supply-chain attacks have increased in frequency and severity, and Q32 cannot guarantee that third parties' infrastructure in its supply chain or its third-party partners' supply chains have not been compromised.

If Q32 (or a third party upon whom Q32 relies) experience a security incident or are perceived to have experienced a security incident, Q32 may experience adverse consequences, such as government enforcement

actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing sensitive information (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in its operations (including availability of data); increased investigation and compliance costs; financial loss; and other similar harms. Security incidents and attendant consequences may cause stakeholders (including investors and potential customers) to stop supporting its research and development activities, deter new customers from products, and negatively impact its ability to grow and operate its business.

Q32's contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in its contracts are sufficient to protect Q32 from liabilities, damages, or claims related to its data privacy and security obligations. Q32 cannot be sure that its insurance coverage will be adequate or sufficient to protect Q32 from or to mitigate liabilities arising out of its privacy and security practices or from disruptions in, or failure or security breach of, its systems or third-party systems where information important to its business operations or commercial development is stored, or that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims.

Q32 is subject to stringent and changing laws, regulations and standards, and contractual obligations relating to privacy, data protection, and data security. The actual or perceived failure to comply with such obligations could lead to government enforcement actions (which could include civil or criminal penalties), fines and sanctions, private litigation and/or adverse publicity and could negatively affect its operating results and business.

Q32, and third parties with whom Q32 works, are or may become subject to numerous domestic and foreign laws, regulations, and standards relating to privacy, data protection, and data security, the scope of which are changing, subject to differing applications and interpretations, and may be inconsistent among countries, or conflict with other rules. Q32 is or may become subject to the terms of contractual obligations related to privacy, data protection, and data security. Q32's obligations may also change or expand as its business grows. The actual or perceived failure by Q32 or third parties related to Q32 to comply with such laws, regulations and obligations could increase its compliance and operational costs, expose Q32 to regulatory scrutiny, actions, fines and penalties, result in reputational harm, lead to a loss of customers, result in litigation and liability, and otherwise cause a material adverse effect on its business, financial condition, and results of operations. See the sections titled "*Q32's Business-Government Regulation-Data Privacy and Security*" and "*Other Regulatory Matters*" in this proxy statement/prospectus for a more detailed description of the laws that may affect its ability to operate.

If Q32 fails to comply with environmental, health and safety laws and regulations, Q32 could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of its business.

Q32 is subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Its operations may involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. In addition, Q32 may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair Q32's research, development or commercialization efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

If Q32 is unable to attract and retain qualified key management and scientists, staff, consultants and advisors, its ability to implement its business plan may be adversely affected.

Q32 is highly dependent upon its senior management and its scientific, clinical and medical staff and advisors. The loss of the service of any of the members of Q32's senior management or other key employees could delay its research and development programs and materially harm its business, financial condition, results of operations and prospects. In addition, Q32 expects that it will continue to have an increased need to recruit and

hire qualified personnel as it advances its programs and expands operations. Failure to successfully recruit and retain personnel could impact Q32's anticipated development plans and timelines. Q32 is dependent on the continued service of its technical personnel because of the highly technical and novel nature of its product candidates, platform and technologies and the specialized nature of the regulatory approval process. Replacing such personnel may be difficult and may take an extended period of time because of the limited number of individuals in Q32's industry with the breadth of skills and experience required to successfully execute its business strategy, and Q32 cannot assure you that it will be able to identify or employ qualified personnel for any such position on acceptable terms, if at all. Many of the biotechnology and pharmaceutical companies with whom Q32 competes for qualified personnel have greater financial and other resources, different risk profiles and longer histories in the industry than Q32 does. Because Q32's management team and key employees are not obligated to provide Q32 with continued service, they could terminate their employment with Q32 at any time without penalty. Q32 does not maintain key person life insurance policies on any of its management team members or key employees. Q32's future success will depend in large part on its continued ability to attract and retain highly qualified scientific, technical and management personnel, as well as personnel with expertise in preclinical and clinical testing, manufacturing, governmental regulation and commercialization. In order to do so, Q32 may need to pay higher compensation or fees to its employees or consultants than it currently expects, and such higher compensation payments may have a negative effect on its operating results. Q32 faces increased competition for personnel from other companies, universities, public and private research institutions, government entities and other organizations. If Q32 is unable to attract and retain qualified personnel, the rate and success at which Q32 may be able to discover and develop its product candidates and implement its business plan will be limited.

Q32 expects to expand its research, development, delivery, manufacturing, commercialization, regulatory and future sales and marketing capabilities over time, and as a result, Q32 may encounter difficulties in managing its growth, which could disrupt its operations.

As of September 30, 2023, Q32 had 35 full-time employees, including 4 who hold Ph.D. degrees and 3 who hold M.D. degrees, and no part-time employees; 25 employees are engaged in research and development and 10 employees in management or general and administrative activities. In connection with the growth and advancement of Q32's pipeline and becoming a public company, Q32 expects to increase the number of its employees and the scope of its operations, particularly in the areas of drug development, regulatory affairs and sales and marketing. To manage its anticipated future growth, Q32 must continue to implement and improve its managerial, operational and financial systems, expand its facilities, and continue to recruit and train additional qualified personnel. Due to Q32's limited financial resources and the limited experience of its management team in managing a company with such anticipated growth, Q32 may not be able to effectively manage the expected expansion of its operations or recruit and train additional qualified personnel. Moreover, Q32's current physical laboratory space may be insufficient for its near-term research and development hiring plans, and the expected physical expansion of Q32's operations may lead to significant costs and may divert its management and business development resources. Any inability to manage growth could delay the execution of Q32's business plans or disrupt its operations.

As a growing biotechnology company, Q32 is actively pursuing new platforms and product candidates in many therapeutic areas and across a wide range of diseases. Successfully developing product candidates for and fully understanding the regulatory and manufacturing pathways to all of these therapeutic areas and disease states requires a significant depth of talent, resources and corporate processes in order to allow simultaneous execution across multiple areas. Due to Q32's limited resources, it may not be able to effectively manage this simultaneous execution and the expansion of its operations or recruit and train additional qualified personnel. This may result in weaknesses in Q32's infrastructure, give rise to operational mistakes, legal or regulatory compliance failures, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The physical expansion of Q32's operations may lead to significant costs and may divert financial resources from other projects, such as the development of Q32's potential product candidates. If Q32's management is unable to effectively manage the expected development and expansion, Q32's expenses may increase more than expected,

its ability to generate or increase its revenue could be reduced and it may not be able to implement its business strategy. Q32's future financial performance and its ability to compete effectively and commercialize any product candidates it may develop will depend in part on its ability to effectively manage the future development and expansion of Q32.

General Risk Factors

Q32's estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the markets in which Q32 competes achieve the forecasted growth, its business may not grow at similar rates, or at all.

Q32's market opportunity estimates and growth forecasts are subject to significant uncertainty and are based on assumptions and estimates which may not prove to be accurate. Its estimates and forecasts relating to size and expected growth of its target market may prove to be inaccurate. Even if the markets in which Q32 competes meet its size estimates and growth forecasts, its business may not grow at similar rates, or at all. Q32's growth is subject to many factors, including its success in implementing its business strategy, which is subject to many risks and uncertainties.

Q32's revenue will be dependent, in part, upon the size of the markets in the territories for which Q32 gains regulatory approval, the accepted price for the product, the ability to obtain coverage and reimbursement and whether Q32 owns the commercial rights for that territory. If the number of its addressable patients is not as significant as Q32 estimates, the indication approved by regulatory authorities is narrower than Q32 expects or the treatment population is narrowed by competition, physician choice or treatment guidelines, Q32 may not generate significant revenue from sales of such products, even if approved.

Q32 may become exposed to costly and damaging liability claims, either when testing a product candidate in the clinical or at the commercial stage, and its product liability insurance may not cover all damages from such claims.

Q32 is exposed to potential product liability and professional indemnity risks that are inherent in the research, development, manufacturing, marketing, and use of pharmaceutical products. While Q32 currently has no products that have been approved for commercial sale, the current and future use of a product candidate in clinical trials, and the sale of any approved products in the future, may expose Q32 to liability claims. These claims may be made by patients that use the product, healthcare providers, pharmaceutical companies, or others selling such product. Any claims against Q32, regardless of their merit, could be difficult and costly to defend and could materially and adversely affect the market for its products or any prospects for commercialization of its products. Although Q32 believes it currently maintains adequate product liability insurance for its product candidates, it is possible that its liabilities could exceed its insurance coverage or that in the future Q32 may not be able to maintain insurance coverage at a reasonable cost or obtain insurance coverage that will be adequate to satisfy any liability that may arise. If a successful product liability claim or series of claims is brought against Q32 for uninsured liabilities or in excess of insured liabilities, its assets may not be sufficient to cover such claims and its business operations could be impaired.

Litigation costs and the outcome of litigation could have a material adverse effect on Q32's business.

From time to time, Q32 may be subject to litigation claims through the ordinary course of its business operations regarding, but not limited to, employment matters, security of patient and employee personal information, contractual relations with collaborators and intellectual property rights. Litigation to defend itself against claims by third parties, or to enforce any rights that Q32 may have against third parties, may continue to be necessary, which could result in substantial costs and diversion of its resources, causing a material adverse effect on its business, financial condition, results of operations or cash flows.

Q32's business could be adversely affected by economic downturns, inflation, increases in interest rates, natural disasters, public health crises such as the COVID-19 pandemic, political crises, geopolitical events, such as conflict between Russia and Ukraine and the conflict in Israel and Gaza, or other macroeconomic conditions, which could have a material and adverse effect on its results of operations and financial condition.

The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including, among other things, diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, supply chain shortages, increases in inflation rates, higher interest rates, and uncertainty about economic stability. For example, the COVID-19 pandemic resulted in widespread unemployment, economic slowdown and extreme volatility in the capital markets. The Federal Reserve has raised interest rates multiple times in response to concerns about inflation and it may raise them again. Higher interest rates, coupled with reduced government spending and volatility in financial markets, may increase economic uncertainty and affect consumer spending. Similarly, the ongoing military conflict between Russia and Ukraine, the conflict in Israel and Gaza and rising tensions with China have created extreme volatility in the global capital markets and may have further global economic consequences, including disruptions of the global supply chain. Any such volatility and disruptions may adversely affect its business or the third parties on whom Q32 relies. If the equity and credit markets deteriorate, including as a result of political unrest or war, it may make any necessary debt or equity financing more costly, more dilutive, or more difficult to obtain in a timely manner or on favorable terms, if at all. Increased inflation rates can adversely affect Q32 by increasing its costs, including labor and employee benefit costs.

Q32 may in the future experience disruptions as a result of such macroeconomic conditions, including delays or difficulties in initiating or expanding clinical trials and manufacturing sufficient quantities of materials. Any one or a combination of these events could have a material and adverse effect on its results of operations and financial condition.

Q32's ability to utilize its net operating loss carryforwards and certain other tax attributes may be limited.

Since Q32's inception, it has incurred losses and it may never achieve profitability. As of December 31, 2022, Q32 had federal and state NOLs of $91.1 million and $85.5 million, respectively. Under current law, Q32's federal NOLs generated in taxable years beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such federal NOLs is limited to 80% of Q32's taxable income annually for tax years beginning after December 31, 2020. Federal NOLs generated in taxable years beginning before January 1, 2018, however, have a 20-year carryforward period, but are not subject to the 80% limitation. Q32's state NOLs expire at various dates from 2037 through 2042. As of December 31, 2022, Q32 had federal research and development tax credit carryforwards of $3.6 million that expire at various dates from 2038 through 2042. In addition, as of December 31, 2022, Q32 had state research and development tax credit carryforwards of $1.4 million that expire at various dates from 2037 through 2042.

Under Sections 382 and 383 of the Code, if a corporation undergoes an "ownership change," generally defined as one or more shareholders or groups of shareholders who own at least 5 percent of the corporation's equity increasing their equity ownership in the aggregate by more than 50 percentage points (by value) over a rolling three-year period, the corporation's ability to use its pre-change NOLs and other pre-change tax attributes (such as research and development tax credits) to offset its post-change income or taxes may be limited. Similar rules may apply under state tax laws. Q32's prior equity offerings and other changes in its stock ownership may have resulted in such ownership changes in the past. Q32 has not conducted a formal study to assess whether an ownership change has occurred or whether there have been multiple ownership changes since its inception. In addition, Q32 may experience ownership changes in the future as a result of future securities offering or subsequent shifts in its stock ownership, some of which are outside of its control. In particular, the Merger and the Pre-Closing Financing, if consummated, may constitute an ownership change within the meaning of Section 382 of the Code, which could eliminate or otherwise substantially limit Q32's ability to use its NOLs and tax credit carryforwards. As a result, even if Q32 earns net taxable income in the future, its ability to use its

pre-change NOLs or other pre-change tax attributes to offset U.S. federal taxable income or income taxes may be subject to limitations, which could potentially result in increased future tax liability to Q32. There is a risk that due to changes under the tax law, regulatory changes or other unforeseen reasons, Q32's existing NOLs or business tax credits could expire or otherwise be unavailable to offset future income tax liabilities. At the state level, there may also be periods during which the use of NOLs or business tax credits is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed by Q32. For these reasons, Q32 may not be able to realize a tax benefit from the use of its NOLs or tax credits, even if it attains profitability

Changes in tax laws or in their implementation or interpretation may adversely affect Q32's business and financial condition.

The rules dealing with U.S. federal, state and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect Q32's business and financial condition. In recent years, many such changes have been made and changes are likely to continue to occur in the future. Q32 cannot predict whether, when, in what form or with what effective dates, tax laws, regulations and rulings may be enacted, promulgated or decided or whether they could increase its tax liability or require changes in the manner in which it operates in order to minimize increases in its tax liability.

Adverse developments affecting the financial services industry could adversely affect Q32's current and projected business operations and its financial condition and results of operations.

Adverse developments that affect financial institutions, such as events involving liquidity that are rumored or actual, have in the past and may in the future lead to bank failures and market-wide liquidity problems. For example, on March 10, 2023, Silicon Valley Bank, or SVB, was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation, or FDIC, as receiver. Similarly, on March 12, 2023, Signature Bank was also swept into receivership. The U.S. Department of Treasury, the Federal Reserve Board, or the Federal Reserve, and the FDIC released a statement that indicated that all depositors of SVB would have access to all of their funds, including funds held in uninsured deposit accounts, after only one business day of closure. The U.S. Department of Treasury, FDIC and Federal Reserve have announced a program to provide up to $25 billion of loans to financial institutions secured by certain government securities held by financial institutions to mitigate the risk of potential losses on the sale of such instruments and help address liquidity pressures that may arise. There is no guarantee, however, that the U.S. Department of Treasury, FDIC and Federal Reserve will provide access to uninsured funds in the future in the event of the closure of other banks or financial institutions, or that they would do so in a timely fashion.

At this time, Q32 holds substantially all of its cash on deposit at SVB (which has been assumed by First Citizens) and Q32 has not experienced any adverse impact to its current and projected business operations, financial condition or results of operations as a result of the closure of SVB or any other banks. Q32 plan to diversify its cash deposit holdings between multiple financial institutions. However, uncertainty remains over liquidity concerns in the broader financial services industry, and Q32's business, business partners, or industry as a whole may be adversely impacted in ways that Q32 cannot predict at this time. If, for example, other banks and financial institutions enter receivership or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, Q32's ability to access its existing cash, cash equivalents and investments may be threatened.

Although Q32 expects to assess its banking relationships as it believes necessary or appropriate, Q32's access to cash in amounts adequate to finance or capitalize its current and projected future business operations could be significantly impaired by factors that affect the financial institutions with which Q32 has banking relationships, and in turn, Q32. These factors could include, among others, events such as liquidity constraints or failures, the ability to perform obligations under various types of financial, credit or liquidity agreements or arrangements, disruptions or instability in the financial services industry or financial markets, or concerns or

negative expectations about the prospects for companies in the financial services industry. These factors could also include factors involving financial markets or the financial services industry generally. The results of events or concerns that involve one or more of these factors could include a variety of material and adverse impacts on Q32's current and projected business operations and its financial condition and results of operations. These could include, but may not be limited to, delayed access to deposits or other financial assets or the uninsured loss of deposits or other financial assets; or termination of cash management arrangements and/or delays in accessing or actual loss of funds subject to cash management arrangements.

In addition, widespread investor concerns regarding the U.S. or international financial systems could result in less favorable commercial financing terms, including higher interest rates or costs and tighter financial and operating covenants, or systemic limitations on access to credit and liquidity sources, thereby making it more difficult for Q32 to acquire financing on acceptable terms or at all. Any decline in available funding or access to its cash and liquidity resources could, among other risks, adversely impact Q32's ability to meet its operating expenses, financial obligations or fulfill its other obligations, result in breaches of its financial and/or contractual obligations or result in violations of federal or state wage and hour laws. Any of these impacts, or any other impacts resulting from the factors described above or other related or similar factors not described above, could have material adverse impacts on Q32's liquidity and its current and/or projected business operations and financial condition and results of operations.

In addition, one or more of Q32's critical vendors, third party manufacturers, or other business partners could be adversely affected by any of the liquidity or other risks that are described above, which in turn, could have a material adverse effect on Q32's current and/or projected business operations and results of operations and financial condition. Any business partner bankruptcy or insolvency, or any breach or default by a business partner, or the loss of any significant supplier relationships, could result in material adverse impacts on Q32's current and/or projected business operations and financial condition.

THE MERGER

This section and the section titled "The Merger Agreement" in this proxy statement/prospectus describe the material aspects of the Merger and the Merger Agreement. While Homology and Q32 believe that this description covers the material terms of the Merger and the Merger Agreement, it may not contain all of the information that is important to you. You should read carefully this entire proxy statement/prospectus for a more complete understanding of the Merger and the Merger Agreement and the other documents to which you are referred in this proxy statement/prospectus.

Background of the Merger

The following chronology summarizes the key meetings and events that led to the signing of the Merger Agreement. This chronology does not purport to catalogue every conversation of or among members of the Homology Board, Homology's representatives and advisors, Q32, Q32's representatives and advisors, and other parties.

Homology's board of directors, or the Homology Board, together with Homology's senior management and with the assistance of Homology's advisors, regularly review and discuss Homology's near and long-term operating and strategic priorities. Among other things, these reviews and discussions focus on the opportunities and risks associated with Homology's operations, financial performance, competitive position, strategic relationships and potential long-term strategic options. The Homology Board, together with Homology's senior management, regularly reviews potential strategic alternatives and opportunities to enhance stockholder value.

Homology historically has focused its business on its proprietary platform designed to utilize its human hematopoietic stem cell-derived adeno-associated virus vectors, or AAVHSCs, to precisely and effectively deliver single-administration genetic medicines *in vivo* through a nuclease-free gene editing modality, gene therapy, or gene therapy to express antibodies platform, or GTx-mAb, which is designed to produce antibodies throughout the body.

Throughout the second half of 2022, Homology engaged in a strategic review of its business and the Homology Board approved a plan to explore, review and evaluate a range of potential strategic options available to it, including, without limitation, an acquisition, merger, sale of assets, strategic partnerships or other transactions. In connection with this plan, Homology engaged TD Cowen as Homology's financial advisor to assist in, among other things, a strategic review process in which, at the direction of the Homology Board, TD Cowen held high-level conversations with approximately 20 counterparties regarding a potential merger, sale of assets, other partnership opportunities or transactions. During this initial strategic review process, the majority of potential counterparties indicated a desire to await the results of Homology's ongoing Phase 1 clinical trial for HMI-103 before proceeding with a potential transaction.

On July 27, 2023, Homology announced the initial results of its Phase 1 trial for HMI-103, with encouraging initial clinical data from the first dose cohort in the Phase 1 trial. However, given the limited number of subjects and some confounding effects in one of the subjects, the data from the trial was viewed as provisionally positive, but immature and inconclusive and requiring additional time and costs to enroll additional patients at higher doses. The Homology Board met several times with senior management to review the initial results of the Phase 1 trial for HMI-103. In light of the anticipated clinical development timeline and costs associated with the additional patient enrollments that would be required, combined with the general market sentiment for gene therapy and gene editing companies, on July 25, 2023, the Homology Board made a strategic decision to discontinue further development of HMI-103, reduce the Homology workforce by 86% as part of a restructuring to reduce its ongoing operating costs and publicly announce plans to evaluate strategic alternatives, including a merger, sale, or other partnership.

On July 28, 2023, at the direction of the Homology Board, TD Cowen began an initial outreach to potential strategic partners, acquirers and reverse merger parties to which Homology's formal process letters were

distributed requesting non-binding indications of interests by August 17, 2023. This initial outreach consisted of contacting 88 potential strategic and reverse merger targets to gauge interest in a potential acquisition or reverse merger with Homology. Of these companies, Homology executed confidentiality agreements with 18 counterparties, four of which contained a (i) customary "standstill" provision to facilitate the Homology Board's oversight of the confidential discussions, subject to a "sunset" provision allowing the counterparty to submit competing acquisition proposals after the date on which Homology enters into a change in control transaction, such as the Merger, with any other counterparty and (ii) "don't ask, don't waive" provision preventing each party from making any requests to amend or waive the standstill, but the provision permitted each party to make such request to amend or waive the standstill if the request would not be reasonably likely to cause public disclosure of such standstill.

As of August 17, 2023 (the first bid deadline), Homology had received 22 initial indications of interest and, over the following weeks, seven additional initial indications of interest were received. Of the 29 indications of interest received, 27 were for a reverse merger, one was for a public-to-public merger, and one was for an out-licensing transaction involving assets being sold to Homology, including the following proposals from bidders that were invited to advance to later stages of the strategic alternatives process:

- On August 2, 2023, the Homology Board received an initial indication of interest for a reverse merger from a biotechnology company (referred to as "Bidder A"). Bidder A's indication of interest proposed an equity valuation of Homology of $75 million and valued Bidder A at a $275 million equity valuation, with a $100 million PIPE financing, and proposed that Bidder A's current stockholders would own 61.1% of the outstanding common stock of the combined company, Homology's current stockholders would own 16.7% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 22.2% of the outstanding common stock of the combined company.
- On August 14, 2023, the Homology Board received an initial indication of interest for a reverse merger from a biotechnology company (referred to as "Bidder B"). Bidder B's indication of interest proposed an equity valuation of Homology of $70 million and valued Bidder B at a $225 million equity valuation, with a $75 to $100 million PIPE financing, and proposed that Bidder B's current stockholders would own 58.8% of the outstanding common stock of the combined company, Homology's current stockholders would own 18.3% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 22.9% (assuming a PIPE financing at the midpoint of the indicated range) of the outstanding common stock of the combined company.
- On August 15, 2023, the Homology Board received an initial indication of interest for a reverse merger from a biotechnology company (referred to as "Bidder C"). Bidder C's indication of interest proposed an equity valuation of Homology of $75 million and valued Bidder C at a $257 million equity valuation, with a $100 million PIPE financing, and proposed that Bidder C's current stockholders would own 60.2% of the outstanding common stock of the combined company, Homology's current stockholders would own 16.4% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 23.4% of the outstanding common stock of the combined company.
- On August 16, 2023, the Homology Board received an initial indication of interest for a reverse merger from Q32. Q32's indication of interest proposed an equity valuation of Homology of $75 million (consisting of $60 million in cash and $15 million in listing value) and valued Q32 at a $250 million equity valuation, with a $75 million PIPE financing, and proposed that Q32's current stockholders would own 62.5% of the outstanding common stock of the combined company, Homology's current stockholders would own 18.8% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 18.8% of the outstanding common stock of the combined company.
- Also on August 16, 2023, the Homology Board received an initial indication of interest for a reverse merger from a biotechnology company (referred to as "Bidder D"). Bidder D's indication of interest

proposed an equity valuation of Homology of $70 million (consisting of $60 million in cash and $10 million in listing value) and valued Bidder D at a $223 million equity valuation, and proposed that Bidder D's current stockholders would own 76.1% of the outstanding common stock of the combined company and Homology's current stockholders would own 23.9% of the outstanding common stock of the combined company.

- On August 17, 2023, the Homology Board received an initial indication of interest for a reverse merger from a biotechnology company (referred to as "Bidder E"). Bidder E's indication of interest proposed an equity valuation of Homology of $60 million and valued Bidder E at a $75 million equity valuation, and proposed that Bidder E's current stockholders would own 55.7% of the outstanding common stock of the combined company and Homology's current stockholders would own 44.3% of the outstanding common stock of the combined company.

On August 18, 2023, Homology's senior management met with representatives of TD Cowen to review each bidder and its indication of interest in detail, including: (i) the bidder's product candidate pipeline, with a preference for multiple programs and product candidates, (ii) the stage of clinical trials for such bidder's product candidates, (iii) the anticipated timeline to intermediate term catalysts for such bidder's product candidates, (iv) the size of market opportunity for such bidder's product candidates, (v) the bidder's existing investor base and willingness to support the combined company, (vi) the quality of the bidder's management team, (vii) the bidder's cash runway, and (vii) the patent protection available for such bidder's product candidates. Following such review, Homology's senior management identified, for the Homology Board's consideration, Q32, Bidder A, Bidder B, Bidder C, Bidder D and Bidder E as priority potential counterparties to be invited to present their respective business cases to Homology.

On August 21, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins LLP, or Latham & Watkins, outside counsel to Homology, present, Homology's senior management provided an update on the proposal process and reviewed with the Homology Board the proposals that Homology had received to date, including those from the priority potential counterparties previously identified for the Homology Board's consideration. Following discussion, the Homology Board authorized Homology senior management to continue discussions with each of Q32, Bidder A, Bidder B, Bidder C, Bidder D and Bidder E regarding their respective indications of interest and request that each such potential counterparty meet with Homology to present their respective business cases.

At the direction of the Homology Board, on August 22, 2023, TD Cowen contacted these priority potential counterparties to schedule management presentations to Homology senior management and select members of the Homology Board.

On August 24, 2023, Bidder C conducted a management presentation on its proposal for a potential transaction to Homology senior management and select members of the Homology Board.

On August 25, 2023, each of Q32 and Bidder D conducted a management presentation on its proposal for a potential transaction to Homology senior management and select members of the Homology Board.

On August 28, 2023, Bidder E conducted a management presentation on its proposal for a potential transaction to Homology senior management and select members of the Homology Board.

On August 31, 2023, Bidder B conducted a management presentation on its proposal for a potential transaction to Homology senior management and select members of the Homology Board.

On September 1, 2023, Bidder A conducted a management presentation on its proposal for a potential transaction to Homology senior management and select members of the Homology Board.

During these management presentations and throughout the strategic alternatives review process, there were no discussions between selected bidders and Homology's senior management regarding post-closing employment and there were no assurances of continued employment provided to Homology's management.

Following these management presentations, on September 1, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, the Homology Board discussed the management presentations and next steps. At this meeting, discussions included planning the delivery of feedback to and conducting due diligence on the priority potential counterparties. In connection with its discussion of priority potential counterparties, the Homology Board also determined that the respective proposals from Bidder C and Bidder E did not present compelling business cases for the long-term value for Homology's stockholders relative to the other proposals received by Homology considering, among other factors, pipeline and data generated to date, proposed valuation, financing runway and concurrent PIPE investment, and timing and magnitude of upcoming catalysts. Following this meeting, at the direction of the Homology Board, representatives of TD Cowen contacted Q32, Bidder A, Bidder B, and Bidder D to deliver the feedback from the Homology Board (including feedback with respect to the relative valuations of Homology and the respective bidders), discuss next steps in the potential transaction processes and provide Homology's due diligence questions to the respective potential counterparties.

On September 3, 2023, after receiving the Homology Board's feedback, Bidder A submitted a revised indication of interest for a reverse merger. Bidder A's revised indication of interest proposed an equity valuation of Homology of $75 million (consisting of $60 million in cash and $15 million in listing value) and valued Bidder A at a $231 million equity valuation, with $100 million in PIPE financing, and proposed that Bidder A's current stockholders would own 56.9% of the outstanding common stock of the combined company, Homology's current stockholders would own 18.5% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 24.6% of the outstanding common stock of the combined company.

On September 7, 2023, after receiving the Homology Board's feedback, Q32 submitted a revised indication of interest for a reverse merger. Q32's revised indication of interest proposed an equity valuation of Homology of $80 million (consisting of $60 million in cash and $20 million in listing value) and valued Q32 at a $225 million equity valuation, with $75 million in PIPE financing, and proposed that Q32's current stockholders would own 59.2% of the outstanding common stock of the combined company, Homology's current stockholders would own 21.1% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 19.7% of the outstanding common stock of the combined company.

Also on September 7, 2023, after receiving the Homology Board's feedback, Bidder B submitted a revised indication of interest for a reverse merger. Bidder B's revised indication of interest proposed an equity valuation of Homology of $80 million and valued Bidder A at a $225 million equity valuation, with $75 to $100 million in PIPE financing, and proposed that Bidder B's current stockholders would own 57.3% of the outstanding common stock of the combined company, Homology's current stockholders would own 20.4% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 22.3% (assuming a PIPE financing at the midpoint of the indicated range) of the outstanding common stock of the combined company.

Also on September 7, 2023, after receiving the Homology Board's feedback, Bidder D submitted a revised indication of interest for a reverse merger. Bidder D's revised indication of interest proposed an equity valuation of Homology of $80 million and valued Bidder D at a $210 million equity valuation, and proposed that Bidder D's current stockholders would own 72.4% of the outstanding common stock of the combined company and Homology's current stockholders would own 27.6%% of the outstanding common stock of the combined company.

Also on September 7, 2023, the Homology Board received an initial indication of interest for a reverse merger from another biotechnology company (referred to as "Bidder F"). Bidder F's indication of interest proposed an equity valuation of Homology of $70 million and valued Bidder F at a $295 million equity valuation, with a $65 million PIPE financing, and proposed that Bidder F's current stockholders would own 68.6% of the outstanding common stock of the combined company, Homology's current stockholders would own 16.3% of the outstanding common stock of the

combined company, and the investors in such PIPE financing would own 15.1% of the outstanding common stock of the combined company.

Also on September 7, 2023, representatives of Bidder A informed representatives of TD Cowen that Bidder A was withdrawing from the strategic alternatives process because it had entered into exclusivity with a different counterparty.

On September 8, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, the Homology Board discussed the strategic alternatives review process conducted to date. During this meeting, TD Cowen provided an update to the Homology Board regarding the new and revised indications of interest received. The Homology Board then discussed whether to select a lead counterparty with which a potential transaction could be pursued, and ultimately the Homology Board selected Q32 as the lead potential counterparty and Bidder F as the primary backup counterparty, based on, among other things, the relative valuations of Homology and the respective counterparties as well as the underlying business cases proposed by such counterparties. Further, the Homology Board authorized Homology's senior management, with the assistance of Homology's advisors, to prepare and deliver a term sheet for a potential reverse merger to Q32 reflecting Homology's counterproposal.

Also on September 8, 2023, at the direction of the Homology Board, Homology's senior management delivered to Q32 a non-binding term sheet for a reverse merger between Q32 and Homology to Q32, which term sheet included a counterproposal to the terms included in Q32's revised indication of interest. This non-binding term sheet proposed an equity valuation of Homology of $80 million (consisting of $60 million in cash and $20 million in listing value) and valued Q32 at a $175 million equity valuation, with $75 million in PIPE financing ($30 million of which must be committed by current stockholders of Q32 prior to execution of a definitive transaction agreement), and proposed that Q32's current stockholders would own 53.0% of the outstanding common stock of the combined company, Homology's current stockholders would own 24.2% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 22.7% of the outstanding common stock of the combined company. Further, the term sheet proposed that proceeds from any divestiture of Legacy Assets after the closing of the proposed transactions would be returned to Homology's pre-closing stockholders through contingent value rights.

On September 9, 2023, representatives of Q32 submitted to TD Cowen a revised draft of the non-binding term sheet, which contemplated a reverse triangular merger with Homology and included a counterproposal to the terms included in the non-binding term sheet Q32 had received from Homology on the previous day. Q32's revised non-binding term sheet proposed an equity valuation of Homology of $80 million (consisting of $60 million in cash and $20 million in listing value) and valued Q32 at a $195 million equity valuation, with $75 million in PIPE financing ($30 million of which must be committed by current stockholders of Q32 prior to execution of a definitive transaction agreement), and proposed that Q32's current stockholders would own 55.7% of the outstanding common stock of the combined company, Homology's current stockholders would own 22.9% of the outstanding common stock of the combined company, and the investors in such PIPE financing would own 21.4% of the outstanding common stock of the combined company.

On September 10, 2023, representatives of Bidder F communicated to TD Cowen Bidder F's willingness to revise the proposed valuation in its initial indication of interest to an equity valuation of Bidder F of $245 million, which under the terms of its initial indication of interest would result in Bidder F's current stockholders owning 64.5% of the outstanding common stock of the combined company, Homology's current stockholders owning 18.3% of the outstanding common stock of the combined company, and the investors in the proposed PIPE financing owning 17.1% of the outstanding common stock of the combined company.

On September 10, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, Homology's senior management and representatives of TD Cowen provided an update regarding negotiation of the non-binding term sheet with Q32,

as well as the updated non-binding proposal from Bidder F. Following discussion, the Homology Board determined to proceed with execution of the non-binding term sheet with Q32 and authorized senior management to finalize the term sheet for execution.

On September 11, 2023, following discussions among representatives of Homology and representatives of Q32, Homology and Q32 agreed to a revised non-binding term sheet, which both parties executed. The agreed non-binding term sheet contemplated a reverse triangular merger between Q32 and Homology, pursuant to which Q32's current stockholders would own 55.7% of the outstanding common stock of the combined company, Homology's current stockholders would own 22.9% of the outstanding common stock of the combined company, and the investors in the proposed PIPE financing would own 21.4% of the combined company. In addition, the agreed-upon term sheet provided for a minimum of 30 days of exclusivity between Homology and Q32, during which time neither party could solicit or initiate any inquiry, proposal or offer from any third party relating to a competing transaction (other than sales of Legacy Assets). The exclusivity provisions of the agreed-upon term sheet provided that exclusivity would not expire until either party provided notice, but that such notice could be provided at any time beginning on October 10, 2023.

On September 16, 2023, following Homology's execution of the term sheet with Q32, at the direction of the Homology Board, members of Homology's senior management and representatives of TD Cowen initiated outreach to 46 potential counterparties to evaluate interest in potential transactions to acquire the Legacy Assets.

On September 18, 2023, Homology's senior management met with members of the Homology Board to, among other things, provide an update on the proposed PIPE financing transaction. Homology's senior management reported that they had received an update from Q32 that, as a result of challenging market conditions, an external lead investor in the proposed PIPE financing had not yet been identified.

On September 19, 2023, Homology's senior management and representatives of Latham & Watkins and TD Cowen met with representatives of Q32, Q32's financial advisor, Leerink Partners LLC, or Leerink Partners, and Goodwin Procter LLP, or Goodwin, outside counsel to Q32, to discuss the initial steps in the proposed reverse merger and PIPE financing transactions.

On September 20, 2023, representatives of Leerink Partners initiated outreach to potential investors in a PIPE financing on behalf of Q32.

On September 22, 2023, representatives of Leerink Partners and Q32 began marketing discussions regarding the proposed PIPE financing transaction with potential investors that had responded positively to such initial outreach.

On September 24, 2023, representatives of Latham & Watkins delivered to representatives of Goodwin an initial draft of the Merger Agreement.

On October 2, 2023, representatives of Latham & Watkins delivered to representatives of Goodwin an initial draft of the CVR Agreement.

On October 4, 2023, representatives of Q32 delivered to representatives of Homology supplemental requests in connection with Q32's ongoing due diligence.

On October 6, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, Homology's senior management and representatives of TD Cowen provided an update regarding negotiation of the definitive agreements and timeline for a potential announcement of the contemplated transactions with Q32.

On October 7, 2023, representatives of Goodwin delivered a revised draft of the Merger Agreement to representatives of Latham & Watkins, which, among other things, reflected Q32's position on the permitted deductions for the determination of Homology net cash at the closing of the Merger and the calculation of

transaction expenses, revised the representations and warranties of the parties, included additional covenants to be made by the parties, updated closing deliverables to be made and provided at closing of the Merger, and revised the non-solicitation, Legacy Asset Disposition and termination provisions.

On October 10, 2023, Homology filed a Form 8-K with the SEC reporting the posting of a corporate slide presentation on the Homology website related to updated HMI-103 data.

On October 11, 2023, TD Cowen provided Homology with certain disclosures for the Homology Board, indicating, among other things, that TD Cowen had no material relationships with Q32 during the approximately two-year period prior to such disclosures.

On October 12, 2023, representatives of Q32 delivered to representatives of TD Cowen an initial draft of Q32's consolidated financial model, or the October 12 Financial Model, including Q32's anticipated expenses. The financial metrics included in the October 12 Financial Model assumed Q32's asset, bempikibart, remained partnered with Horizon Therapeutics.

On October 14, 2023, representatives of Goodwin delivered a revised draft of the CVR Agreement to representatives of Latham & Watkins, which, among other things, requested a follow-up management discussion regarding the definition and mechanics of the "commercially reasonable efforts" that the combined company would be required to use to dispose of Legacy Assets, as well as revisions to the definition of permitted deductions to reduce proceeds distributable to Homology stockholders to account for contingent indemnification obligations and changes to the composition of a post-closing special committee of the board of the combined company to administer the CVR Agreement.

On October 16, 2023, at the direction of Homology's senior management, representatives of TD Cowen delivered to representatives of Leerink Partners Homology's supplemental due diligence requests regarding the October 12 Financial Model in connection with Homology's ongoing due diligence review of Q32 and the proposed transactions, including a request for Q32's cash flow statements and questions with respect to anticipated market share and revenue expectations and anticipated research & development timing and associated expenses.

On October 20, 2023, representatives of Homology and Q32 conducted a financial due diligence call with representatives of TD Cowen in attendance.

On October 23, 2023, representatives of Latham & Watkins delivered a revised draft of the Merger Agreement to representatives of Goodwin, which, among other things, clarified the Merger conversion mechanics and permitted deductions to the calculation of Homology's net cash and the calculation of transaction expenses, revised the representations and warranties of the parties, updated the covenants of the parties, and revised the non-solicitation, Legacy Asset Disposition and termination provisions.

On October 30, 2023, representatives of Q32 delivered to representatives of Homology cash flow statements for the purpose of demonstrating sufficient financing runway for Q32 and the combined company, assuming either a $75 million or $50 million PIPE financing.

On October 31, 2023, Q32 notified Homology that Q32 had entered into discussions with Amgen to regain worldwide rights to bempikibart, which would result in such asset remaining wholly owned by Q32. With this new information, Q32 engaged in renewed discussions with the potential investors contemplating participation in the proposed PIPE financing transaction.

Also on October 31, 2023, representatives of Latham & Watkins delivered a revised draft of the CVR Agreement to representatives of Goodwin, which, among other things, revised the definition of permitted deductions to contemplate that proceeds distributable to Homology stockholders would initially be reduced for contingent indemnification obligations, but that such proceeds would subsequently be distributed to Homology

stockholders upon final resolution of any indemnification obligation, and revised the definition of "commercially reasonable efforts" to clarify that the combined company would not be required to hire any separate business development personnel to dispose of Legacy Assets.

On November 6, 2023, representatives of Q32 notified representatives of Homology that it had identified sufficient demand to pursue a $40 million PIPE financing led by its current investors and representatives of Q32 delivered to representatives of Homology an updated operating plan and supporting cash flow statements for the purpose of demonstrating sufficient financing runway for Q32 and the combined company through the combination of cash from the proposed $40 million PIPE financing, Homology's pre-closing cash and capital from Q32's existing debt facility (such proposal, the "November 6 Proposal").

On November 7, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, Homology's senior management provided an update regarding negotiations with Q32 and the November 6 Proposal. The Homology Board considered whether to negotiate the Q32 Equity Value of $195 million downward based on the reduced size of Q32's proposed PIPE financing, and ultimately the Homology Board determined that the Q32 Equity Value of $195 million remained appropriate in light of Q32's pipeline and data generated to date, financing runway, and timing and magnitude of upcoming catalysts, as well as the fact that Q32 previously had agreed to reduce its valuation from $250 million to $195 million during negotiations in September 2023. Following discussion, the Homology Board determined to proceed with a transaction with Q32 on the terms outlined in the November 6 Proposal and authorized senior management to continue negotiations with Q32.

On November 8, 2023, representatives of Homology and Q32 met, together with their respective advisors, to discuss final supplemental diligence questions between the parties and a plan to advance the Merger Agreement and the transactions contemplated thereunder toward signing and announcement of such transactions.

From November 8, 2023 to November 15, 2023, representatives of Homology, Q32, Leerink Partners, Goodwin and Latham & Watkins continued to negotiate the terms of the Merger Agreement, CVR Agreement and other ancillary agreements. Negotiations with respect to the CVR Agreement focused on the scope of permitted deductions to proceeds distributable to Homology stockholders for contingent indemnification obligations and the duration and definition of "commercially reasonable efforts" that the combined company would be required to use to effect a Legacy Asset Disposition.

On November 9, 2023, representatives of Leerink Partners delivered a revised consolidated Q32 financial model, or the November 9 Financial Model, to representatives of TD Cowen. The primary change in the November 9 Financial Model relative to the October 12 Financial Model was that the November 9 Financial Model assumed that Q32 had reacquired the worldwide rights to bempikibart from Amgen.

On November 10, 2023, representatives of Leerink Partners informed representatives of TD Cowen that sufficient investor commitments had been received to achieve the proposed $40 million Pre-Closing Financing.

On November 12, 2023, representatives of Latham & Watkins and Goodwin met to negotiate and resolve the then-remaining open terms of the Merger Agreement, including the termination fees payable by the parties if the Merger Agreement were terminated under certain circumstances. The parties agreed to a termination fee payable by Homology to Q32 under certain circumstances of $2.4 million and a termination fee payable by Q32 to Homology under certain circumstances of $5.85 million.

Later on November 12, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, Homology's senior management provided an update regarding the status of negotiations of the Merger Agreement, the CVR Agreement and other ancillary agreements and the process for signing and announcement of the contemplated transactions. Homology's senior management reported that while Homology and Q32 had made significant progress toward finalizing the terms of the contemplated transactions, a number of points remained open and the parties were not yet in a position to execute the Merger Agreement. Homology's senior management also presented the Q32 Projections as prepared

by Q32 and the adjustments made by Homology's senior management to such model. After discussion, the Homology Board approved the Q32 Projections as prepared by Q32 management, as adjusted by the Homology Adjustments made by Homology's senior management, for TD Cowen's use and reliance in connection with its financial analyses and opinion.

On November 13, 2023, at a meeting of the Homology Board with Homology's senior management and representatives of TD Cowen and Latham & Watkins present, Homology's senior management provided a further update regarding the status of negotiations of the Merger Agreement, the CVR Agreement and other ancillary agreements and the process for signing and announcement of the contemplated transactions. Homology's senior management reported that while Homology and Q32 had continued to make progress toward finalizing the terms of the contemplated transactions, the parties were not yet in a position to execute the Merger Agreement. At the request of the Homology Board, TD Cowen reviewed a preliminary financial analysis of the Q32 Equity Value.

Throughout November 14 and November 15, 2023, Homology and Q32 continued to discuss and work to finalize the Merger Agreement, the CVR Agreement and other ancillary agreements.

During the afternoon of November 15, 2023, a meeting of the Homology Board was held, with Homology's senior management team and representatives from TD Cowen and Latham & Watkins present. Homology's senior management reported that the parties had finalized all open points and the Merger Agreement, the CVR Agreement and ancillary documents were in agreed form. Latham & Watkins reviewed the final terms of the Merger Agreement with the Homology Board. At the request of the Homology Board, TD Cowen then reviewed its financial analysis of the Q32 Equity Value with the Homology Board and delivered an oral opinion, confirmed by delivery of a written opinion dated November 15, 2023, to the Homology Board to the effect that, based on and subject to the various assumptions made, procedures followed, matters considered and limitations and qualifications on the review undertaken by TD Cowen as set forth in such opinion, as of November 15, 2023, the Q32 Equity Value provided for pursuant to the Merger Agreement was fair, from a financial point of view, to Homology. Given, among other factors, the fact that (i) the Homology Valuation would be based on Homology's actual net cash position at closing plus $20 million ascribed to Homology's public company listing, and (ii) Homology stockholders were not receiving any securities in the Merger, the Homology Board did not seek an opinion from TD Cowen with respect to the Homology Valuation or the exchange ratio formula in the Merger Agreement. After discussion, taking into account (i) Homology's financial condition and prospects, (ii) outreach efforts conducted on behalf of Homology, (iii) Homology's decision to no longer pursue development of HMI-103, (iv) the potential for Homology's stockholders to benefit from the future growth of the combined company, (v) the proposed terms of the Merger Agreement and (vi) other factors described under the heading "*—Homology's Reasons for the Merger*," the Homology Board unanimously determined that the Merger Agreement and the other transactions contemplated thereby were advisable and in the best interests of Homology and its stockholders, approved and declared advisable the Merger and the other transactions contemplated under the Merger Agreement, and recommended that Homology's stockholders vote to approve the issuance of Homology common stock in the Merger.

During the evening of November 15, 2023, Homology and Q32 executed the Merger Agreement, certain Homology stockholders executed the Homology stockholder support agreements and the Homology lock-up agreements, and certain Q32 stockholders executed the Q32 stockholder support agreements and the Q32 lock-up agreements. Before the opening of trading on Nasdaq on November 16, 2023, Homology and Q32 issued a joint press release announcing the execution of the Merger Agreement and subscription agreements for the Pre-Closing Financing and Homology filed a current report on Form 8-K with the SEC announcing the execution of the Merger Agreement.

Homology Reasons for the Merger

During the course of its evaluation of the Merger Agreement and the transactions contemplated by the Merger Agreement, Homology's board of directors held numerous meetings, consulted with Homology's senior management, legal counsel and financial advisor, and reviewed a significant amount of information. Homology's board of directors considered the following factors in reaching its conclusion to approve the Merger Agreement and the transactions contemplated thereby and to recommend that the Homology stockholders approve the

Merger and the issuance of shares of Homology common stock in the Merger, all of which the Homology board of directors viewed as supporting its decision:

- Homology's board of directors review of the business, financial position and prospects of Homology on a standalone basis, and the determination that Homology could not reasonably be expected to fund its programs on a standalone basis without substantial additional investment;
- Homology's decision, announced in July 2023, to stop further development of its programs and reduce its workforce by 86% in an effort to significantly reduce its ongoing operating costs while the Company explored, reviewed and evaluated a range of potential strategic options available to the Company, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transaction;
- the extensive strategic review process conducted by Homology, with the assistance of Homology's management and legal and financial advisors, to review the range of strategic alternatives available to Homology, including a potential sale of all or a part of Homology and a potential reverse merger of Homology with a privately held biotechnology company, and which involved outreach to 88 strategic and reverse merger targets for a sale of all or a part of, or a reverse merger with, Homology;
- Homology's board of directors' view that no alternatives to the Merger (including remaining a standalone company, a liquidation or dissolution of Homology to distribute any available cash, and alternative strategic transactions) were reasonably likely to create greater value for Homology's stockholders;
- Homology's board of directors' belief that, in the absence of substantial additional investment in Homology on a standalone basis, the Legacy Asset Disposition represents the best alternative to realize value for the Legacy Assets;
- the current financial market conditions and historical market prices, volatility and trading information with respect to Homology common stock, as well as the unfavorable state of the capital-raising environment for biotechnology companies in general which would make it challenging for Homology to raise additional capital;
- Homology's board of directors' belief that the $20.0 million equity value ascribed to Homology, in addition to Homology's anticipated $60.0 million net cash position, provides value for Homology's public company listing in addition to its net cash, and the fact that the $20.0 million equity value was consistent with (or higher than) the value ascribed to the public company listing by other bidders that submitted an indication of interest during the strategic alternatives process;
- Homology's board of directors concluded that the Merger would provide Homology's stockholders with (i) an opportunity to participate in the potential growth and value creation of the combined company following the Merger by virtue of their continued ownership of the combined company's common stock, and (ii) the potential to receive certain cash payments following the closing of the Merger pursuant to the CVR Agreement;
- Homology's board of directors' review of the business, strategy, financial position and prospects of Q32 and, in that context, the potential for Q32's clinical development pipeline to generate substantial long-term value for the combined company and its stockholders;
- the financial resources available to the combined company as a result of the Pre-Closing Financing and the fact that the Pre-Closing Financing will be completed at the same implied equity value of Q32 as provided for pursuant to the Merger Agreement, as well as the possibility that the combined company would be able to take advantage of the potential benefits resulting from the Homology public company structure to raise additional funds in the future, if necessary;
- Homology's board of directors' view, following a review with Homology's management and a scientific consultant of Q32's current development plans, of the likelihood that the combined company would possess sufficient cash resources at the closing of the Merger to fund development of Q32's pipeline through upcoming value inflection points;

- Homology's board of directors' view that the combined company is expected to be led by (i) a highly experienced and accomplished senior management team from Q32, many of whom have extensive experience in drug development, and (ii) a board of directors with representation from each of the current boards of directors of Homology and Q32; and
- the financial presentation and opinion of TD Cowen, dated November 15, 2023, to Homology's board of directors as to the fairness, from a financial point of view and as of the date of such opinion, to Homology of the Q32 Equity Value provided for pursuant to the Merger Agreement, which opinion was based on and subject to the various assumptions made, procedures followed, matters considered and limitations and qualifications on the review undertaken by TD Cowen set forth in such opinion as more fully described under the heading "*The Merger—Opinion of Homology's Financial Advisor.*"

Homology's board of directors also reviewed the terms of the Merger Agreement and associated transactions, including:

- the calculation of the exchange ratio, closing net cash and the estimated number of shares of Homology common stock to be issued in the Merger, including that the valuation of Homology under the Merger Agreement would be reduced only to the extent that Homology's closing net cash is less than $59.5 million, and that the valuation of Homology under the Merger Agreement would be increased to the extent Homology's closing net cash exceeds $60.5 million;
- the Q32 Pre-Closing Financing contemplated by the subscription agreement and the limited number and nature of the conditions to the obligation of the proposed investors in Q32 to consummate the Q32 Pre-Closing Financing contemplated by the subscription agreement and that Q32's receipt of $42.0 million pursuant to the subscription agreement is a closing condition under the Merger Agreement;
- the limited number and nature of the conditions to Q32's obligation to consummate the Merger and the limited risk of non-satisfaction of such conditions as well as the likelihood that the Merger will be consummated on a timely basis, as more fully described below under the caption "*The Merger Agreement—Conditions to the Completion of the Merger*" in this proxy statement/prospectus;
- the rights of Homology under the Merger Agreement to consider certain unsolicited Acquisition Proposals under certain circumstances should Homology receive a Superior Offer, as more fully described below under the caption "*The Merger Agreement—Non-Solicitation*" in this proxy statement/prospectus;
- the right of each party to terminate the Merger Agreement and the reasonableness of the potential termination fees of $2.4 million, in the case of the fee payable by Homology, and $5.85 million, in the case of the fee payable by Q32, which could become payable by either Homology or Q32, as applicable, to the other party if the Merger Agreement is terminated in certain circumstances, as more fully described below under the caption "*The Merger Agreement—Termination and Termination Fees*" in this proxy statement/prospectus;
- the support agreements, pursuant to which certain stockholders of Homology and Q32 agreed, solely in their capacity as stockholders, to vote all of their shares of Homology or Q32 capital stock, as applicable, in favor of adoption of the Merger Agreement and the transactions contemplated thereby, as more fully described below under the caption "*Agreements Related to the Merger—Support Agreements*" in this proxy statement/prospectus;
- the lock-up agreements, pursuant to which certain stockholders of Homology and Q32 agreed, subject to certain exceptions and solely in their capacity as stockholders, to refrain from transferring or disposing of Homology common stock for a period of 180 days after the completion of the Merger, as more fully described below under the caption "*Agreements Related to the Merger—Lock-Up Agreements*" in this proxy statement/prospectus;

- the potential ability of Homology's stockholders to realize value for the sale of the assets and rights under the CVR Agreement, as more fully described below under the caption "*Agreements Related to the Merger—Contingent Value Rights Agreement*" in this proxy statement/prospectus;
- the agreement of Q32 to provide written consent of its stockholders necessary to adopt the Merger Agreement thereby approving the Merger and related transactions; and
- the belief that the terms of the Merger Agreement, including the parties' representations, warranties and covenants, and the conditions to their respective obligations, are reasonable under the circumstances.

In the course of its deliberations, the Homology board of directors also considered a variety of risks and other countervailing factors related to entering into the Merger, including:

- the risk that the potential benefits of the Merger may not be fully achieved, or may not be achieved within the expected timeframe;
- the possibility that Homology's stockholders may not approve the Merger proposals;
- the $2.4 million termination fee payable to Q32 upon the occurrence of certain events and the potential effect of such termination fee in deterring other potential acquirers from proposing an alternative transaction that may be more advantageous to Homology stockholders;
- the prohibition on Homology to solicit alternative acquisition proposals during the pendency of the Merger;
- the substantial expenses to be incurred in connection with the Merger;
- the possibility that Homology Net Cash, as more fully described below under the caption "*The Merger Agreement—Calculation of Homology's Net Cash*" in this proxy statement/prospectus, may be lower at Closing that currently anticipated, which would reduce the ownership of Homology stockholders of the combined company;
- the possible volatility of the trading price of the Homology common stock resulting from the announcement, pendency or completion of the Merger;
- the scientific, technical, regulatory and other risks and uncertainties associated with development and commercialization of Q32's product candidates;
- the risk that, while the Merger is expected to be completed, there is no assurance that all the conditions to the parties' obligations to complete the Merger will be satisfied or waived, and the risk that the Merger might not be consummated in a timely manner or at all;
- the risk to the business of Homology and its operations and financial results in the event that the Merger is not consummated, including the potential adverse effect of the public announcement of a failure to complete the Merger on the reputation of Homology;
- the strategic direction of the combined company following the completion of the Merger, which will be determined by a board of directors of which the members of the current Homology board of directors will comprise a minority;
- the possibility that Homology's stockholders may not receive any value under the CVR Agreement, including if the Legacy Assets are not sold prior to the 18-month anniversary of the Closing Date; and
- various other risks associated with the combined organization and the Merger, including those described in the section titled "*Risk Factors*" in this proxy statement/prospectus.

The foregoing information and factors considered by Homology's board of directors are not intended to be exhaustive but are believed to include certain material factors considered by Homology's board of directors. In view of the wide variety of factors considered in connection with its evaluation of the Merger and the complexity of these matters, Homology's board of directors did not find it useful, and did not attempt, to quantify, rank or otherwise assign relative weights to these factors. In considering the factors described above, individual members

of Homology's board of directors may have given different weight to different factors. Homology's board of directors conducted an overall review of the factors described above and considered the factors overall to be favorable to, and to support, its determination.

Q32 Reasons for the Merger

In the course of reaching its decision to approve the Merger, the Q32 board of directors held numerous meetings, consulted with Q32's senior management, its financial advisors and legal counsel, and considered a wide variety of factors, including, among others, the following material factors (which factors are not necessarily presented in any order of relative importance):

- the Merger will provide Q32's current stockholders with greater liquidity by owning publicly-traded stock, and expanding the range of investors potentially available as a public company, compared to the investors Q32 could otherwise gain access to if it continued to operate as a privately-held company;
- the historical and current information concerning Q32's business, including its financial performance and condition, operations, management, clinical and preclinical data;
- the competitive nature of the industry in which Q32 operates;
- the Q32 board of directors' belief that no alternatives to the Merger were reasonably likely to create greater value for Q32's stockholders, after reviewing the various financing and other strategic options to enhance stockholder value that were considered by the Q32 board of directors;
- the projected financial position, operations, management structure, geographic locations, operating plans, cash burn rate and financial projections of the combined company, including the expected cash resources of the combined organization (including the ability to support the combined company's current and planned clinical trials and operations);
- the availability of appraisal rights under the DGCL to holders of Q32's capital stock who comply with the required procedures under the DGCL, which allow such holders to seek appraisal of the fair value of their shares of Q32 capital stock as determined by the Delaware Court of Chancery;
- the terms and conditions of the Merger Agreement, including the following:
- the determination that the expected relative percentage ownership of Homology's stockholders and Q32's stockholders in the combined organization was appropriate, based on the Q32 board of directors' judgment and assessment of the approximate valuations of Homology and Q32;
- the expectation that the Merger should qualify as a "reorganization" within the meaning of Section 368(a) of the Code for U.S. federal income tax purposes, with the result that the Q32 stockholders that exchange their Q32 common stock for Homology common stock in the Merger should generally not recognize taxable gain or loss for U.S. federal income tax purposes on such exchange;
- the limited number and nature of the conditions of the obligation of Homology to consummate the Merger;
- the rights of Q32 under the Merger Agreement to consider certain unsolicited acquisition proposals under certain circumstances should Q32 receive a superior proposal;
- the conclusion of the Q32 board of directors that the potential termination fee of $5,850,000, payable by Q32 to Homology, and the circumstances when such fee may be payable, were reasonable;
- the conclusion of the Q32 board of directors that the potential termination fee of $2,400,000, payable by Homology to Q32, and the circumstances when such fee may be payable, were reasonable;
- the belief that the other terms of the Merger Agreement, including the parties' representations, warranties and covenants, and the conditions to their respective obligations, were reasonable in light of the entire transaction;

- the shares of Homology's common stock issued to Q32's stockholders in the Merger will be registered on a Form S-4 registration statement and will become freely tradable for Q32's stockholders who are not affiliates of Q32 and who are not parties to lock-up agreements;
- the support agreements, pursuant to which certain directors, officers and stockholders of Q32 and Homology, respectively, have agreed, solely in their capacity as stockholders of Q32 and Homology, respectively, to vote all of their shares of Q32 capital stock or Homology common stock in favor of the issuance of shares of Homology to stockholders of Q32;
- the ability to obtain a Nasdaq listing and the change of the combined organization's name to Q32 Bio Inc. upon the closing of the Merger; and
- the likelihood that the Merger will be consummated on a timely basis.

The Q32 board of directors also considered a number of uncertainties and risks in its deliberations concerning the Merger and the other transactions contemplated by the Merger Agreement, including the following:

- the possibility that the Merger might not be completed for a variety of reasons, such as the failure of Homology to obtain the required stockholder vote, and the potential adverse effect of the public announcement of the Merger on the reputation of Q32 and the ability of Q32 to obtain financing in the future in the event the Merger is not completed;
- the risk that future sales of common stock by existing Homology stockholders may cause the price of Homology common stock to fall, thus reducing the potential value of Homology common stock received by Q32 stockholders following the Merger;
- the exchange ratio used to establish the number of shares of Homology's common stock to be issued to Q32's stockholders in the Merger is fixed, except for adjustments due to the parties' respective cash balances and outstanding capital stock at closing, and thus the relative percentage ownership of Homology's stockholders and Q32's stockholders in the combined organization immediately following the completion of the Merger is similarly fixed;
- the termination fee of $5,850,000, payable by Q32 to Homology upon the occurrence of certain events, and the potential effect of such termination fee in deterring other potential acquirers from proposing an alternative transaction that may be more advantageous to Q32's stockholders;
- the potential reduction of Homology's net cash prior to the closing;
- the possibility that Homology could, under certain circumstances, consider unsolicited acquisition proposals if superior to the Merger or change its recommendation to approve the Merger upon certain events;
- the risk that the Merger might not be consummated in a timely manner or at all;
- the costs involved in connection with completing the Merger, the time and effort of Q32 senior management required to complete the Merger, the related disruptions or potential disruptions to Q32's business operations and future prospects, including its relationships with its employees, suppliers and partners and others that do business or may do business in the future with Q32, and related administrative challenges associated with combining the companies;
- the additional expenses and obligations to which Q32's business will be subject following the Merger that Q32 has not previously been subject to, including pursuant to the CVR Agreement, and the operational changes to Q32's business, in each case that may result from being a public company;
- the fact that the representations and warranties in the Merger Agreement do not survive the closing of the Merger and the potential risk of liabilities that may arise post-closing; and
- various other risks associated with the combined organization and the Merger, including the risks described in the section entitled "*Risk Factors*" in this proxy statement/prospectus.

The foregoing information is not intended to be exhaustive, but summarizes the material factors considered by the Q32 board of directors in its consideration of the Merger Agreement and the transactions contemplated. The Q32 board of directors concluded that the benefits, advantages and opportunities of a potential transaction outweighed the uncertainties and risks described above. After considering these and other factors, the Q32 board of directors unanimously approved the Merger Agreement, the Merger and the other transactions contemplated by the Merger Agreement.

Opinion of Homology's Financial Advisor

Homology has engaged TD Cowen as its financial advisor in connection with the Merger. In connection with this engagement, the Homology board of directors requested that TD Cowen evaluate the fairness, from a financial point of view, to Homology of the Q32 Equity Value provided for pursuant to the Merger Agreement.

At a meeting of the Homology board of directors held on November 15, 2023, TD Cowen reviewed with the Homology board of directors TD Cowen's financial analysis of the Q32 Equity Value and delivered an oral opinion, confirmed by delivery of a written opinion dated November 15, 2023, to the Homology board of directors to the effect that, based on and subject to the various assumptions made, procedures followed, matters considered and limitations and qualifications on the review undertaken by TD Cowen as set forth in such opinion, as of November 15, 2023, the Q32 Equity Value provided for pursuant to the Merger Agreement was fair, from a financial point of view, to Homology. For purposes of TD Cowen's financial analyses and opinion, the term "Q32 Equity Value" refers to the equity value of $195 million ascribed to Q32 pursuant to the Merger Agreement. **The full text of TD Cowen's written opinion, dated November 15, 2023, is attached as *Annex H* to this proxy statement/prospectus and is incorporated herein by reference. The summary of TD Cowen's written opinion set forth herein is qualified in its entirety by reference to the full text of such opinion. TD Cowen's analyses and opinion were prepared for and addressed to the Homology board of directors and were directed only to the fairness, from a financial point of view, to Homology of the Q32 Equity Value. TD Cowen's opinion did not in any manner address any other aspect or implication of the Merger, including the Homology Valuation, the exchange ratio formula in the Merger Agreement or the value of Homology CVRs, nor did TD Cowen's opinion address Homology's underlying business decision to effect the Merger or related transactions or the relative merits of the Merger or related transactions as compared to other business strategies or transactions that might be available to Homology. The Q32 Equity Value was determined through negotiations between Homology and Q32 and TD Cowen's opinion does not constitute a recommendation to any securityholder or any other person as to how to vote or act with respect to the Merger, any related transactions or otherwise.**

In connection with its opinion, TD Cowen reviewed and considered such financial and other matters as it deemed relevant, including, among other things:

- a final form, provided to TD Cowen on November 15, 2023, of the Merger Agreement;
- certain publicly available financial and other information for Homology and certain other relevant financial and operating data furnished to TD Cowen by the management of Homology;
- certain financial and other information for Q32 and certain other relevant financial and operating data furnished to TD Cowen by the managements of Homology and Q32;
- certain internal financial analyses, probability-adjusted financial forecasts, reports and other information concerning Q32 prepared by the management of Q32 as adjusted by the management of Homology (as adjusted, referred to in this section as the "Q32 forecasts");
- discussions TD Cowen had with certain members of the managements of Homology and Q32, as the case may be, concerning the historical and current business operations, financial conditions and prospects of Homology and Q32 and such other matters that TD Cowen deemed relevant;

- certain operating results of, and financial information for, Q32 as compared to similar information for certain publicly traded companies that TD Cowen deemed relevant; and

- such other information, financial studies, analyses and investigations and such other factors that TD Cowen deemed relevant for the purposes of its opinion.

In conducting its review and arriving at its opinion, TD Cowen, at the direction of the Homology board of directors, assumed and relied, without independent investigation, upon the accuracy and completeness of all financial and other information provided to TD Cowen by Homology and Q32 or which was publicly available or was otherwise reviewed by TD Cowen. TD Cowen did not undertake any responsibility for the accuracy, completeness or reasonableness of, or independent verification of, such information. TD Cowen relied upon the respective representations of Homology and Q32 that all information provided to TD Cowen by Homology and Q32 was accurate and complete in all material respects and TD Cowen expressly disclaimed any undertaking or obligation to advise any person of any change in any fact or matter affecting its opinion of which TD Cowen becomes aware after the date of TD Cowen's opinion.

TD Cowen was advised that, given that Homology's assets and liabilities are comprised of cash (net of liabilities) and the Homology Legacy Assets (which currently are contemplated to be sold) and that Homology was not expected to have any continuing business operations on a standalone basis other than those incidental to Homology's status as a publicly traded company, the management of Homology had not prepared financial forecasts relating to Homology. Accordingly, TD Cowen did not perform a financial analysis of Homology or the CVRs. TD Cowen assumed that, when delivered as contemplated by the Merger Agreement, additional financial statements and other financial information relating to Q32 would not reflect any information that would be meaningful in any respect to TD Cowen's analyses or opinion. TD Cowen further assumed, at the direction of the Homology board of directors, that the Q32 forecasts (as adjusted by the management of Homology) were reasonably prepared by the managements of Homology and Q32, as the case may be, on bases reflecting the best currently available estimates and good faith judgments of such managements as to the future performance of Q32 and the other matters covered thereby, and that such Q32 forecasts utilized in TD Cowen's analyses provided a reasonable basis for TD Cowen's opinion. TD Cowen relied on the assessments of the managements of Homology and Q32 as to, among other things, (i) the product pipeline, future products, technology and intellectual property of Q32, including the viability of and risks associated with such product pipeline, future products, technology and intellectual property, and (ii) the terms of the Pre-Closing Financing, including with respect to the timing, amount, valuation and other terms involved and potential impact thereof. TD Cowen assumed that there would be no developments with respect to any such matters that would have an adverse effect on Q32, Homology, the Merger or related transactions (including the contemplated benefits thereof) or that otherwise would be meaningful in any respect to TD Cowen's analyses or opinion. TD Cowen expressed no opinion as to the Q32 forecasts or the assumptions on which they were based.

In addition, TD Cowen assumed that there had been no material changes in the assets, liabilities, financial condition, results of operations, businesses or prospects of Q32 or Homology since the dates of the last financial statements made available to TD Cowen. TD Cowen did not make or obtain any independent evaluations, valuations or appraisals of the assets or liabilities (contingent, accrued, derivative, off-balance sheet or otherwise) of Q32, Homology or any other entity, nor was TD Cowen furnished with such materials. TD Cowen did not conduct nor did TD Cowen assume any obligation to conduct any physical inspection of the properties or facilities of Q32, Homology or any other entity. TD Cowen also did not evaluate the solvency or fair value of Q32, Homology or any other entity under any state, federal or foreign laws relating to bankruptcy, insolvency or similar matters. In addition, TD Cowen did not undertake an independent evaluation of any actual or potential litigation, settlements, governmental or regulatory proceedings or investigations, possible unasserted claims or other contingent liabilities to which Q32, Homology or any other entity may be a party or subject. TD Cowen assumed that the Merger would qualify for the intended tax treatment contemplated by the Merger Agreement. TD Cowen's opinion did not address any legal, tax, accounting or regulatory matters related to the Merger Agreement, the Merger or any related transactions, as to which TD Cowen assumed that Homology and the

Homology board of directors received such advice from legal, tax, accounting and regulatory advisors as each determined appropriate.

TD Cowen's opinion addressed only the fairness of the Q32 Equity Value, from a financial point of view, to Homology. TD Cowen expressed no view as to any related transactions (including, without limitation, the Pre-Closing Financing), the CVRs or any other aspect or implication of the Merger, including, without limitation, any support or lock-up agreements, subscription agreements or any other agreement, arrangement or understanding entered into in connection with the Merger, any related transactions or otherwise. TD Cowen's opinion was necessarily based upon economic and market conditions and other circumstances as they existed and could be evaluated by TD Cowen on the date of such opinion. It should be understood that although subsequent developments may affect TD Cowen's opinion, TD Cowen does not have any obligation to update, revise or reaffirm its opinion and TD Cowen expressly disclaims any responsibility to do so.

TD Cowen did not consider any potential legislative or regulatory changes currently being considered or recently enacted by the United States or any foreign government, or any domestic or foreign regulatory body, or any changes in accounting methods or generally accepted accounting principles that may be adopted by the SEC, the Financial Accounting Standards Board, or any similar foreign regulatory body or board.

For purposes of rendering its opinion, TD Cowen assumed in all respects material to its analyses that the representations and warranties of each party contained in the Merger Agreement were true and correct, that each party would perform all of the covenants and agreements required to be performed by it under the Merger Agreement and that all conditions to the consummation of the Merger and related transactions would be satisfied without waiver thereof. TD Cowen also assumed that the executed form of the Merger Agreement would be substantially similar to the final form reviewed by TD Cowen. TD Cowen further assumed that all governmental, regulatory and other consents and approvals contemplated by the Merger Agreement would be obtained and that in the course of obtaining any of those consents no restrictions would be imposed or waivers made that would have an adverse effect on Q32, Homology, the Merger or related transactions (including the contemplated benefits thereof). In addition, TD Cowen assumed that the Merger and related transactions would be consummated in a manner that complies with the applicable provisions of the Securities Act, the Exchange Act and all other applicable state or federal statutes, rules and regulations.

It was understood that TD Cowen's opinion was intended for the benefit and use of the Homology board of directors (in its capacity as such) in its evaluation of the Q32 Equity Value. TD Cowen's opinion did not and does not constitute a recommendation to the Homology board of directors, any securityholder or any other person as to how to vote or act with respect to the Merger, any related transactions or otherwise. TD Cowen expressed no opinion as to the actual value, price or trading range of any securities of Homology (including Homology common stock and the CVRs) or Q32 (including Q32 common stock, Q32 preferred stock and Q32 convertible notes) upon or following announcement or consummation of the Merger and related transactions. TD Cowen was not requested to opine as to, and its opinion did not in any manner address, Homology's underlying business decision to effect the Merger or related transactions or the relative merits of the Merger or related transactions as compared to other business strategies or transactions that might be available to Homology, including a liquidation of Homology. In addition, TD Cowen was not requested to opine as to, and its opinion did not in any manner address, (i) the fairness of the amount or nature of the compensation to the officers, directors or employees, or class of such persons, of any parties to the Merger or any related transactions relative to the Q32 Equity Value or otherwise or (ii) the fairness of the Merger, any related transactions or the Q32 Equity Value to the holders of any class of securities, creditors or other constituencies of Homology or Q32.

Financial Analyses

The summary of the financial analyses described below under this heading "—*Financial Analyses*" is a summary of the material financial analyses performed by TD Cowen to arrive at its opinion. Some of the summaries of TD Cowen's financial analyses include information presented in tabular format. In order to fully

understand the financial analyses, the tables must be read together with the text of each summary. The tables alone do not constitute a complete description of the financial analyses. Considering the data set forth in the tables without considering the full narrative description of the financial analyses, including the methodologies and assumptions underlying the analyses, could create a misleading or incomplete view of the financial analyses. TD Cowen performed certain procedures, including each of the financial analyses described below, and reviewed with the Homology board of directors certain assumptions on which such analyses were based and other factors, including the historical and projected financial results of Q32. Approximate implied equity value reference ranges derived from the financial analyses described below were rounded to the nearest $5 million.

Selected Publicly Traded Companies Analysis. TD Cowen reviewed selected financial and stock market information of Q32 and certain publicly traded clinical-stage biotechnology companies that TD Cowen considered generally relevant for purposes of analysis as companies addressing autoimmune and inflammatory diseases that lack profitability and are in early stage clinical trials (collectively, the "selected companies"). These companies were:

- Alpine Immune Sciences, Inc.
- AnaptysBio, Inc.
- Apogee Therapeutics, Inc.
- Dianthus Therapeutics, Inc.
- Tourmaline Bio, Inc.
- Zura Bio Limited

The financial data reviewed included estimated enterprise values, calculated as implied equity values based on closing stock prices on November 14, 2023 plus total debt and less cash and cash equivalents. Financial data of the selected companies were based on publicly available Wall Street research analysts' estimates, public filings and other publicly available information. Financial data of Q32 was based on financial information concerning Q32 provided to TD Cowen .

The clinical stages of development observed for the selected companies ranged from Phase I to Phase II-ready and the overall low to high estimated enterprise values observed for the selected companies was approximately $(33) million to $473 million (with a 25th percentile of $17 million, a 75th percentile of $359 million and a median of $132 million). TD Cowen then selected the observed range of enterprise values (rounded) derived from the selected companies of $15 million to $360 million for Q32. This analysis indicated the following approximate implied equity value reference range for Q32, as compared to the Q32 Equity Value:

Approximate Implied Equity Value Reference Range	Q32 Equity Value
$45 million – $385 million	$195 million

Although the selected companies were used for comparison purposes, none of those companies is directly comparable to Q32. Accordingly, an analysis of the results of such a comparison is not purely mathematical, but instead involves complex considerations and judgments concerning differences in historical and projected financial and operating characteristics of the selected companies and other factors that could affect the public trading values of the selected companies.

Discounted Cash Flow Analysis. TD Cowen performed a discounted cash flow analysis of Q32 by calculating the estimated present value of the standalone unlevered, after-tax free cash flows that Q32 was forecasted to generate during the fiscal years ending December 31, 2024 through December 31, 2050 to capture Q32's cash flows through profitability and loss of regulatory and patent exclusivity based on the Q32 forecasts (inclusive of the impact of Q32's potential net operating loss carryforwards per the management of Q32 and

probability-adjusted by the management of Homology to reflect potential risks associated with the clinical development of Q32's products). For purposes of this analysis, stock-based compensation was treated as a cash expense. TD Cowen calculated implied terminal values for Q32 by applying to Q32's estimated unlevered, after-tax free cash flows for the fiscal year ending December 31, 2050 a perpetuity growth rate of (33)% and a selected range of probability of success rates of 15% to 30%. The present values of the cash flows and terminal values were then calculated using a selected range of discount rates of 14% to 17%. This analysis indicated the following approximate implied equity value reference range for Q32, as compared to the Q32 Equity Value:

Approximate Implied Equity Value Reference Range	Q32 Equity Value
$155 million – $790 million	$195 million

Miscellaneous

The summary set forth above does not purport to be a complete description of all the analyses performed by TD Cowen. The preparation of a fairness opinion involves various determinations as to the most appropriate and relevant methods of financial analysis and the application of these methods to the particular circumstances and, therefore, such an opinion is not readily susceptible to partial analysis or summary description. TD Cowen did not attribute any particular weight to any analysis or factor considered by it, but rather made qualitative judgments as to the significance and relevance of each analysis and factor. Accordingly, notwithstanding the separate factors summarized above, TD Cowen believes that its analyses must be considered as a whole and that selecting portions of its analyses and the factors considered by it, without considering all analyses and factors, could create an incomplete view of the process underlying its opinion. In performing its analyses, TD Cowen made numerous assumptions with respect to industry performance, business and economic conditions and other matters, many of which are beyond the control of Homology and Q32. The analyses performed by TD Cowen are not necessarily indicative of actual values or future results, which may be significantly more or less favorable than suggested by such analyses. In addition, analyses relating to the value of businesses do not purport to be appraisals or to reflect the prices at which businesses or securities may actually be sold. Accordingly, such analyses and estimates are inherently subject to uncertainty and are based upon numerous factors or events beyond the control of the parties or their respective advisors. None of Homology, Q32, TD Cowen or any other person assumes responsibility if future results are materially different from those projected. The analyses performed by TD Cowen and its opinion were only one among many factors taken into consideration by the Homology board of directors in evaluating the Q32 Equity Value and should not be considered as determinative of the views of the Homology board of directors or Homology management with respect to the Merger, the Q32 Equity Value or otherwise.

TD Cowen was selected by Homology to act as financial advisor to Homology in connection with the Merger because TD Cowen is a nationally recognized investment banking firm and because, as part of its investment banking business, TD Cowen is continually engaged in the valuation of businesses and their securities in connection with mergers and acquisitions, negotiated underwritings, secondary distributions of listed and unlisted securities, private placements and valuations for corporate and other purposes.

For its services as financial advisor to Homology in connection with the Merger, TD Cowen will receive from Homology an aggregate fee of $2.5 million, of which a portion was payable in connection with TD Cowen's opinion and $1.85 million is payable contingent upon consummation of the Merger. In addition, Homology has agreed to reimburse TD Cowen's expenses, including fees and expenses of counsel, and indemnify TD Cowen for certain liabilities, including liabilities under federal securities laws, that may arise out of TD Cowen's engagement.

TD Cowen in the past has provided, currently is providing and in the future may provide financial advisory and/or investment banking services to Homology and/or its affiliates unrelated to the Merger, for which services TD Cowen has received and expects to receive compensation, including during the two years preceding the date of TD Cowen's opinion having served as sales agent for certain at-the-market offerings of Homology common

stock, for which services TD Cowen received during such two-year period aggregate fees of less than $50,000 from Homology. Although TD Cowen has not had a material relationship with Q32 during the two years preceding the date of TD Cowen's opinion, TD Cowen in the future may provide services to Q32 and/or its affiliates and may receive compensation for the rendering of such services. In addition, in the ordinary course of its business, TD Cowen and its affiliates may actively trade the securities of Homology and/or its affiliates for their own account and for the accounts of their customers, and, accordingly, may at any time hold a long or short position in such securities. The issuance of TD Cowen's opinion was approved by TD Cowen's fairness opinion review committee.

Certain Unaudited Financial Projections for Q32

As a matter of course, Q32 does not publicly disclose long-term projections of future financial performance given among other things, the inherent difficulty of predicting financial performance for future periods and the possibility that the underlying assumptions and estimates may not be realized. However, in connection with the exploration of strategic opportunities described in this proxy statement/prospectus, Q32 management prepared certain non-public, unaudited projections of financial performance for Q32 (the "Q32 November 9 Financial Model"), which were provided to Homology and adjusted by Homology as further detailed in this section (the "Homology Adjusted Q32 Projections" and, together with the "Q2 November 9 Financial Model," the "Q32 Projections") based on its view of the prospects of Q32.

The Q32 Projections did not give effect to any changes or expenses as a result of the Merger or any other effects of the Merger or any impact should the Merger fail to be consummated. The Q32 Projections were prepared solely for internal use and are subjective in many respects. As a result, there can be no assurance that the forecasted results will be realized or that actual results will not be significantly higher or lower than estimated. The estimates and assumptions underlying the Q32 Projections involve judgments with respect to, among other things, future economic, competitive, regulatory and financial market conditions that may not materialize and are inherently subject to significant uncertainties and contingencies, all of which are difficult to predict and many of which are beyond Q32's control. There can be no assurance that the Q32 Projections will be realized and actual results may vary materially from those shown. Neither Homology's independent auditors, nor any other independent accountants, have compiled, examined, or performed any procedures with respect to the prospective financial information contained herein, nor have they expressed any opinion or any other form of assurance on such information or its achievability, and assume no responsibility for, and disclaim any association with, the prospective financial information.

The prospective financial information included in this proxy statement/prospectus was not prepared with a view toward public dissemination or compliance with published guidelines of the SEC or established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information or generally accepted accounting principles, or GAAP, but, in the view of Q32 management, was prepared on a reasonable basis, reflected, at the time the prospective financial information was prepared, the best currently available estimates and judgments of Q32 management, and presented, to the best of Q32 management's knowledge and belief at that time, the expected course of action and the expected future financial performance of Q32. However, this information is not fact and should not be relied upon as necessarily predictive of actual future results and readers of this proxy statement/prospectus are cautioned not to place undue reliance, if any, on the prospective financial information.

The Q32 Projections are included in this proxy statement/prospectus solely to give Homology's and Q32's stockholders access to certain long-term financial analyses and forecasts that were made available to Homology and its financial advisor, and is not included in this proxy statement/prospectus to influence a Homology stockholder's decision whether to vote for the Merger Proposal or for any other purpose. The inclusion of the Q32 Projections in this proxy statement/prospectus does not constitute an admission or representation that the information is material. The inclusion of the Q32 Projections should not be regarded as an indication that Q32 and/or its affiliates, officers, directors, advisors or other representatives consider the Q32 Projections to be necessarily predictive of actual future events and this information should not be relied upon as such. None of

Q32, Homology and/or their respective affiliates, officers, directors, advisors or other representatives gives any stockholder of Homology or Q32 any assurance that actual results will not differ materially from the Q32 Projections. The Q32 Projections do not take into account any circumstances, transactions or events occurring after the date on which they were prepared.

Certain of the measures included in the Q32 Projections may be considered non-GAAP financial measures. Non-GAAP financial measures should not be considered in isolation from, or as a substitute for, financial information presented in compliance with GAAP, and non-GAAP financial measures as used by Q32 may not be comparable to similarly titled amounts used by other companies.

Financial measures provided to a financial advisor are excluded from the definition of non-GAAP financial measures and therefore, are not subject to SEC rules regarding disclosures of non-GAAP financial measures, which would otherwise require a reconciliation of a non-GAAP financial measure to a GAAP financial measure. Reconciliations of non-GAAP financial measures were not relied upon by the Homology Board in connection with its consideration of the Merger or by TD Cowen for purposes of its financial analyses. Accordingly, Q32 has not provided a reconciliation of the non-GAAP financial measures included in the Q32 Projections.

For the foregoing and other reasons, readers of this proxy statement/prospectus are cautioned that the inclusion of a summary of the Q32 Projections in this proxy statement/prospectus should not be regarded as a representation or guarantee that the targets will be achieved nor that they should place undue reliance, if any, on the Q32 Projections. The Q32 Projections constitute forward-looking statements and are subject to risks and uncertainties that could cause actual results to differ materially from the projected results. See also "*Cautionary Statement Concerning Forward-Looking Statements*" in this proxy statement/prospectus. The Q32 Projections are also subject to many risks and uncertainties and you are urged to review the section entitled "*Risk Factors*" in this proxy statement/prospectus for a description of risk factors relating to the Merger and Q32's business.

The Q32 November 9 Financial Model was based on numerous variables and assumptions that were deemed reasonable as of the date on which such projections were finalized, including, among other things, the following material assumptions:

- the material product revenue streams being net sales of Q32's bempikibart for the treatment of atopic dermatitis and alopecia areata and ADX-097 for AAV induction and maintenance in the United States;
- a 2028 launch for a product to treat atopic dermatitis and alopecia areata in the United States and a 2030 launch for both an AAV induction therapy product and an AAV maintenance therapy product in the United States;
- peak market penetration in the United States ranging from 10-25%;
- loss of regulatory and patent exclusivity in 2044 in the United States for Q32's bempikibart and ADX-097 product candidates;
- revenues outside the United States based on 20% royalty;
- tiered royalty payments to Bristol Myers Squibb with percentages ranging from mid-single digit to low-double digits; and
- a tax rate of 25% and a projected federal net operating loss (NOL) balance of $127 million as of December 31, 2023.

The following table presents a summary of the Q32 November 9 Financial Model.

($ in millions)	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	2036E	2037E
Total Revenue[1]	—	—	—	—	$ 64	$ 249	$ 682	$1,332	$2,108	$2,805	$3,363	$3,824	$3,931	$4,021
Gross Profit[2]	—	—	—	—	$ 54	$ 211	$ 584	$1,147	$1,822	$2,418	$2,893	$3,289	$3,382	$3,461
EBIT(3)	($ 70)	($ 83)	($ 82)	($317)	($381)	($ 61)	$ 266	$ 787	$1,225	$1,583	$2,036	$2,315	$2,380	$2,437

($ in millions)	2038E	2039E	2040E	2041E	2042E	2043E	2044E	2045E	2046E	2047E	2048E	2049E	2050E
Total Revenue[1]	$3,875	$3,668	$3,383	$3,162	$2,954	$2,824	$2,201	$1,712	$1,269	$ 981	$ 759	$ 587	$ 453
Gross Profit[2]	$3,358	$3,208	$2,992	$2,823	$2,664	$2,562	$1,996	$1,552	$1,154	$ 892	$ 690	$ 533	$ 412
EBIT[3]	$2,371	$2,274	$2,130	$2,018	$1,912	$1,843	$1,436	$1,116	$ 831	$ 642	$ 497	$ 384	$ 297

(1) Total Revenue is a non-GAAP financial measure that reflects risk-unadjusted revenue associated with product sales.

(2) Gross Profit is a non-GAAP financial measure that reflects Total Revenue, less costs of goods sold and royalties owed by Q32 on ADX-914.

(3) EBIT is a non-GAAP financial measure defined as Gross Profit less research and development expense, general and administrative expense, sales and marketing expense, stock-based compensation expense and other expense.

Following discussions with Q32 management, Homology management made adjustments to the Q32 November 9 Financial Model. The material differences and reasons for such differences in the Homology Adjusted Q32 Projections, compared to the Q32 November 9 Financial Model are: (i) Homology management applied a probability of success rate of 25%, reflecting the probability of Q32 being able to successfully develop, obtain marketing approval for, and commercialize its ADX-097 and ADX-914 product candidates, including achieving market acceptance and obtaining adequate insurance coverage, (ii) Homology management estimated annual capital expenditures equivalent to 3% of the change in Q32's annual U.S. revenue, (iii) Homology management applied a 3.0% growth rate to stock-based compensation expense until 2040 and a decrease based on revenue after such date and (iv) Homology management estimated an annual change in working capital equal to 8% of the change in Q32's annual U.S. revenue. The Homology Board considered, among other things, the Homology Adjusted Q32 Projections in its evaluation of the Merger and determined that the time period and revenue figures presented in the Homology Adjusted Q32 Projections were reasonable based on, among other things, the anticipated time needed for development, regulatory approval and commercialization of Q32's ADX-097 and ADX-914 product candidates and projected revenue for ADX-097 and ADX-914 products. In evaluating these factors, the Homology Board considered the early-stage of development of Q32's ADX-097 and ADX-914 product candidates, the years-long process of development and regulatory review required for a biopharmaceutical product candidate to be approved, the potential market for adaptive and innate immune system modulators, and the expected loss of regulatory and patent exclusivity for such products based on current regulations.

The following table presents a summary of the Homology Adjusted Q32 Projections.

($ in millions)	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	2036E	2037E
Total Adjusted Revenue[1]	—	—	—	—	$ 16	$ 62	$ 170	$ 332	$ 526	$ 699	$ 839	$ 954	$ 980	$1,003
Gross Profit[2]	—	—	—	—	$ 14	$ 52	$ 146	$ 286	$ 454	$ 603	$ 721	$ 820	$ 843	$ 863
EBIT[3]	($ 71)	($ 84)	($ 83)	($119)	($ 98)	($ 15)	$ 71	$ 205	$ 319	$ 414	$ 530	$ 603	$ 620	$ 635
NOPAT[4]	($ 71)	($ 84)	($ 83)	($119)	($ 98)	($ 15)	$ 67	$ 195	$ 303	$ 341	$ 398	$ 452	$ 465	$ 476
Unlevered Free Cash Flow[5]	($ 71)	($ 84)	($ 83)	($121)	($102)	($ 25)	$ 52	$ 177	$ 286	$ 326	$ 386	$ 447	$ 463	$ 478

($ in millions)	2038E	2039E	2040E	2041E	2042E	2043E	2044E	2045E	2046E	2047E	2048E	2049E	2050E
Total Adjusted Revenue[1]	$ 966	$ 915	$ 844	$ 788	$ 737	$ 704	$ 549	$ 427	$ 317	$ 245	$ 189	$ 146	$ 113
Gross Profit[2]	$ 837	$ 800	$ 746	$ 704	$ 664	$ 639	$ 498	$ 387	$ 288	$ 223	$ 172	$ 133	$ 103
EBIT[3]	$ 617	$ 592	$ 554	$ 524	$ 496	$ 478	$ 372	$ 289	$ 215	$ 166	$ 129	$ 99	$ 77
NOPAT[4]	$ 463	$ 444	$ 415	$ 393	$ 372	$ 359	$ 279	$ 217	$ 162	$ 125	$ 96	$ 74	$ 57
Unlevered Free Cash Flow[5]	$ 468	$ 450	$ 421	$ 399	$ 376	$ 371	$ 292	$ 228	$ 170	$ 131	$ 101	$ 78	$ 67

(1) Total Adjusted Revenue is a non-GAAP financial measure that reflects risk-adjusted revenue associated with product sales.

(2) Gross Profit is a non-GAAP financial measure that reflects Total Adjusted Revenue, less costs of goods sold and royalties owed by Q32 on ADX-914.

(3) EBIT is a non-GAAP financial measure defined as Gross Profit less research and development expense, general and administrative expense, sales and marketing expense, stock-based compensation expense and other expense.

(4) NOPAT is a non-GAAP financial measure defined as EBIT less taxes.

(5) Unlevered Free Cash Flow is a non-GAAP financial measure defined as EBIT less tax expense (if profitable), capital expenditures and change in net working capital.

Homology management was provided with Q32's estimates of Q32 cash of $33 million and Q32 debt of $6 million as of September 2023 and this financial information, together with the Homology Adjusted Q32 Projections, were provided by Homology to TD Cowen for TD Cowen's use and reliance in connection with its financial analyses and opinion described above under "*—Opinion of Homology's Financial Advisor*."

Interests of Homology Directors and Executive Officers in the Merger

In considering the recommendation of the Homology board of directors with respect to issuing shares of Homology common stock in the Merger and the other matters to be acted upon by the Homology stockholders at the Homology Special Meeting, Homology stockholders should be aware that the directors and executive officers of Homology have interests in the Merger that may be different from, or in addition to, the interests of Homology stockholders generally. These interests may present such directors and executive officers with actual or potential conflicts of interest, and these interests, to the extent material, are described below.

The Homology board of directors was aware of and considered these potential conflicts of interest, among other matters, in reaching its decision to approve the Merger Agreement and the Merger, and to recommend that the Homology stockholders approve the proposals to be presented to the stockholders for consideration at the Homology Special Meeting as contemplated in this proxy statement/prospectus.

Ownership Interests

As of February 5, 2024, Homology's non-employee directors and executive officers beneficially owned, in the aggregate, approximately 10.2% of the shares of Homology common stock, excluding any shares of Homology common stock issuable upon exercise or settlement of stock options or restricted stock units held by such individuals. The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote thereon, assuming a quorum is present, is required for approval of the Stock Issuance Proposal, the Reverse Stock Split Proposal, the Merger Compensation Proposal, the Stock Option and Incentive Plan Proposal, the ESPP Proposal and the Adjournment Proposal. Certain Homology stockholders have also entered into support agreements in connection with the Merger. For a more detailed discussion of the support agreements, please see the section titled "*Agreements Related to the Merger—Support Agreements*" in this proxy statement/prospectus.

Treatment of Homology Equity Awards

Homology Options

Each outstanding option to purchase shares of Homology common stock that has an exercise price per share that is less than the closing trading price of a share of Homology common stock on the last full trading date on which the Homology common stock is traded prior to the date on which the Effective Time occurs, which is referred to as a Homology ITM Option, will vest in full immediately prior to the Effective Time, including those Homology ITM Options held by Homology's executive officers and non-employee directors. The number of shares of Homology common stock underlying such options and the exercise price of such options will be

adjusted in accordance with Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the proposed Reverse Stock Split, as described under "*Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split—Principal Effects of the Reverse Stock Split—Equity Compensation Plans and Outstanding Equity-Based Awards*" in this proxy statement/prospectus, and the issuance of the CVRs.

Homology estimates that the aggregate amount that would be payable, net of exercise price, to all persons who are or have been an executive officer or non-employee director of Homology since January 1, 2022 if they exercised their Homology ITM Options, whether vested or unvested, and immediately sold the Homology common stock acquired upon exercise is approximately $106,000, based on the closing trading price of Homology common stock on February 5, 2024.

The table below sets forth information regarding the options to purchase Homology common stock held as of February 5, 2024 by each person who is or has been during the period beginning on January 1, 2022 through the date of this proxy statement/prospectus, an executive officer or non-employee director of Homology. The number of shares of Homology common stock underlying such options and the exercise price of such options will be adjusted in accordance with Homology's 2018 Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the proposed Reverse Stock Split, as described under "*Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split—Principal Effects of the Reverse Stock Split—Equity Compensation Plans and Outstanding Equity-Based Awards*" in this proxy statement/prospectus, and the issuance of the CVRs. Depending on when the Effective Time occurs, certain options shown in the table may vest in accordance with their terms prior to the Effective Time.

Name	Number of Vested Options (#)	Value of Vested Options ($)(1)	Number of Unvested Options (#)	Value of Unvested Options ($)(1)
Executive Officers				
Paul Alloway, Ph.D.	271,977	—	191,023	—
Albert Seymour, Ph.D. (2)	658,790	—	589,128	—
W. Bradford Smith (3)	619,464	—	243,647	—
Michael Blum (4)	223,252	—	131,148	—
Julie Jordan, M.D. (5)	83,144	—	—	—
Charles Michaud, Jr.	53,271	—	49,829	—
Non-Employee Directors				
Arthur Tzianabos, Ph.D.	2,008,246	105,505	248,918	—
Steven Gillis, Ph.D.	100,740	—	23,000	—
Matthew R. Patterson	101,690	—	23,000	—
Jeffrey V. Poulton	72,000	—	23,000	—
Alise S. Reicin, M.D.	85,160	—	23,000	—
Mary Thistle	100,740	—	23,000	—

(1) The estimated value is the excess, if any, of (i) $0.702, which is the closing trading price of Homology common stock on February 5, 2024, over (ii) the exercise price of the option, multiplied by the number of shares underlying the vested or unvested portion, as applicable, of the option as of February 5, 2024.

(2) Dr. Seymour, Homology's former President and Chief Executive Officer, terminated employment with Homology on November 17, 2023. Under Dr. Seymour's separation agreement, among other things, no options to purchase shares of Homology common stock vested on his termination date. The shares underlying such options and the value thereof, are included in the "Number of Vested Options" and "Value of Vested Options" columns in the table. The remaining unvested options and the value thereof, remain outstanding and eligible to vest in accordance with the separation agreement and are included in the "Number of Unvested Options" and "Value of Unvested Options" columns in the table.

(3) Mr. Smith, Homology's former Chief Financial and Business Officer and Treasurer, terminated employment with Homology on November 17, 2023. Under Mr. Smith's separation agreement, no options to purchase shares of Homology common stock vested on his termination date. The shares underlying such options and the value thereof are included in the "Number of Vested Options" and "Value of Vested Options" column in the table. The remaining unvested options and the value thereof remain outstanding and eligible to vest in accordance with the separation agreement and are included in the "Number of Unvested Options" and "Value of Unvested Options" columns in the table.

(4) Mr. Blum, Homology's former Chief Commercial Officer, terminated employment with Homology on August 3, 2023, but continues to provide services to Homology under a consulting agreement, dated August 3, 2023.

(5) Dr. Jordan, Homology's former Chief Medical Officer, terminated employment with Homology on August 3, 2023.

Homology Restricted Stock Units

Each restricted stock unit award covering shares of Homology common stock, which is referred to as a Homology Restricted Stock Unit, that is outstanding and unvested will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit, including those Homology Restricted Stock Units held by Homology's executive officers. Each Homology Restricted Stock Unit will be adjusted in accordance with Homology's 2018 Incentive Award Plan to reflect the issuance of the CVRs.

Homology estimates that the aggregate value of the shares of Homology common stock that would be payable to all persons who are or have been an executive officer or non-employee director of Homology since January 1, 2022 upon vesting and settlement of the Homology Restricted Stock Units is approximately $129,000. This amount was determined using a per share Homology stock price of $0.702, which is the closing trading price of Homology common stock on February 5, 2024.

The table below sets forth information regarding the Homology Restricted Stock Units held as of February 5, 2024 by each person who is or has been during the period beginning on January 1, 2022 and the date of this proxy statement/prospectus, an executive officer of Homology. Other than Dr. Tzianabos, Homology's non-employee directors did not hold any Homology Restricted Stock Units as of such date. The Homology Restricted Stock Units will be adjusted in accordance with Homology's 2018 Incentive Award Plan to reflect the proposed Reverse Stock Split, as described under "*Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split—Principal Effects of the Reverse Stock Split—Equity Compensation Plans and Outstanding Equity-Based Awards*" in this proxy statement/prospectus, and the issuance of the CVRs. Depending on when the Effective Time occurs, certain Homology Restricted Stock Units shown in the table may vest in accordance with their terms prior to the Effective Time.

Name	Unvested Restricted Stock Units (#)	Value of Unvested Restricted Stock Units ($)(1)
Executive Officers		
Paul Alloway, Ph.D.	23,530	16,518
Albert Seymour, Ph.D. (2)	85,971	60,352
W. Bradford Smith (3)	31,260	21,945
Michael Blum (4)	16,490	11,576
Julie Jordan, M.D. (5)	—	—
Charles Michaud, Jr.	6,448	4,526
Non-Employee Directors		
Arthur Tzianabos, Ph.D.	19,720	13,843

(1) The estimated value of each unvested Homology Restricted Stock Unit is $0.702, which is the closing trading price of Homology common stock on February 5, 2024.

(2) Dr. Seymour, Homology's former President and Chief Executive Officer, terminated employment with Homology on November 17, 2023. Under Dr. Seymour's separation agreement, among other things, 41,354 Homology Restricted Stock Units vested on his termination date. His remaining unvested Homology Restricted Stock Units and the value thereof, remain outstanding and eligible to vest in accordance with the separation agreement and are included in the "Unvested Restricted Stock Units" and "Value of Unvested Restricted Stock Units" columns in the table.

(3) Mr. Smith, Homology's former Chief Financial and Business Officer and Treasurer, terminated employment with Homology on November 17, 2023. Under Mr. Smith's separation agreement, among other things, 22,523 Homology Restricted Stock Units vested on his termination date. His remaining unvested Homology Restricted Stock Units and the value thereof remain outstanding and eligible to vest in accordance with the separation agreement and are included in the "Unvested Restricted Stock Units" and "Value of Unvested Restricted Stock Units" columns in the table.

(4) Mr. Blum, Homology's former Chief Commercial Officer, terminated employment with Homology on August 3, 2023, but continues to provide services to Homology under a consulting agreement, dated August 3, 2023.

(5) Dr. Jordan, Homology's former Chief Medical Officer, terminated employment with Homology on August 3, 2023 and does not hold any restricted stock units.

Homology Employee Stock Purchase Plan

Homology sponsors its 2018 Employee Stock Purchase Plan, which is referred to as the Homology ESPP, in which executive officers and other employees are eligible to participate. In accordance with the Merger Agreement, Homology's board of directors has adopted resolutions (i) providing that (a) no offering periods or

purchase periods will begin after or in addition to the offering period underway as of the date of the Merger Agreement under the Homology ESPP, or the Current Offering Period, (b) no payroll deductions or other contributions will be made or effected after the Current Offering Period, and (c) each Homology ESPP participant's accumulated contributions under the Homology ESPP will be returned to the participant in accordance with the terms of the Homology ESPP and (ii) terminating the Current Offering Period.

Executive Employment Arrangements

Paul Alloway, Ph.D.

Under Dr. Alloway's amended and restated agreement, entered into on November 16, 2023, he is entitled to (a) an annual base salary of $462,425, (b) a payment equal to 50% of his target annual bonus for 2023, subject to his continued employment through the payment date, or the Alloway Annual Bonus, and (c) a lump sum cash payment in an amount equal to his base salary for the number of days elapsed from July 27, 2023 through the closing of the Merger, subject to his continued employment and a maximum of seven months of base salary (i.e., a maximum of $269,747.92), or the Alloway Change in Control Bonus. If Homology terminates Dr. Alloway without "cause" or he resigns for "good reason," subject to his timely executing a separation agreement, including a release of claims, and his continued compliance with restrictive covenants (including a non-competition covenant), he is entitled to receive (i) an amount in cash equal to his base salary, (ii) payment of the Alloway Annual Bonus if it is unpaid as of the date of termination, (iii) direct payment of or reimbursement for continued medical, dental or vision coverage pursuant to COBRA for up to 12 months, less the amount he would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on his termination date, (iv) an extension of the post-termination exercise period for his vested and outstanding options until the first anniversary of his termination date, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger, (v) accelerated vesting of a prorated portion of the number of his unvested service-vesting restricted stock units that are scheduled to vest on the first annual vesting date of the applicable award following the date of termination, with the proration determined by reference to the portion of the vesting year that has elapsed since the last annual vesting date of the applicable award (or since the grant date if no vesting has occurred) rounded down to the nearest whole restricted stock unit, (vi) if the termination is before the Merger closes, a lump sum cash payment of $115,606.25, or the Partial Alloway Change in Control Bonus, (vii) if the termination is before the Merger closes, the Merger closes on or before August 16, 2024 and he provides transition services from his termination until closing of the Merger to the reasonable satisfaction of Homology, the excess of the Alloway Change in Control Bonus (determined disregarding the continued service requirement) over the Partial Alloway Change in Control Bonus, and (viii) if the termination is on or during the 12 months following the date the Merger closes, (A) accelerated vesting of all unvested service-vesting equity or equity-based awards and (B) an extension of the post-termination exercise period for his options that vest upon the closing of the Merger until the first anniversary of his termination date; provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger.

Albert Seymour, Ph.D.

Homology's board of directors terminated the employment of Dr. Seymour, effective as of November 17, 2023. Under the terms of his separation agreement, subject to his continued compliance with restrictive covenants (including a non-competition covenant), Dr. Seymour is entitled to receive (i) base salary continuation for a period of 12 months, (ii) payment of all bonuses earned but unpaid as of the date of termination, (iii) direct payment of or reimbursement for continued medical, dental or vision coverage pursuant to COBRA for up to 12 months, less the amount he would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on his termination date, (iv) a lump-sum cash payment equal to $85,759.88, (v) a lump-sum cash payment equal to 50% of his target annual bonus for 2023, (vi) an extension of the post-

termination exercise period for his vested options until the first anniversary of his termination date, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger, and (vii) accelerated vesting of a prorated portion of the number of his service-vesting restricted stock units that are scheduled to vest on the first annual vesting date of the applicable award following the date of termination, with the proration determined by reference to the portion of the vesting year that has elapsed since the last annual vesting date of the applicable award (or since the grant date if no vesting has occurred), rounded down to the nearest whole restricted stock unit. If the Merger closes on or before August 16, 2024, then, in addition to the foregoing severance benefits, Dr. Seymour is entitled to receive (a) an amount in cash equal to 0.5 times his base salary, (b) an amount in cash equal to 25% of his target annual bonus for the year of termination, (c) direct payment of or reimbursement for continued medical, dental or vision coverage pursuant to COBRA for up to 6 months, less the amount he would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on his termination date, (d) accelerated vesting of all unvested options and restricted stock units that vest solely based on the passage of time, with any such awards that vest based on the attainment of performance-vesting conditions being governed by the terms of the applicable award agreement, (e) if he provides transition services from his termination until closing of the Merger to the reasonable satisfaction of Homology, a lump sum cash payment of $85,759.88, and (f) an extension until the first anniversary of his termination date of the post-termination exercise period for options that vest upon closing of the Merger, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger.

W. Bradford Smith

Homology's board of directors terminated the employment of Mr. Smith, effective as of November 17, 2023. Under the terms of his separation agreement, subject to his continued compliance with restrictive covenants (including a non-competition covenant), Mr. Smith is entitled to receive (i) base salary continuation for a period of 12 months, (ii) payment of all bonuses earned but unpaid as of the date of termination, (iii) direct payment of or reimbursement for continued medical, dental or vision coverage pursuant to COBRA for up to 12 months, less the amount he would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on his termination date, (iv) a lump-sum cash payment equal to $69,345.14, (v) a lump-sum cash payment equal to 50% of his target annual bonus for 2023; (vi) an extension of the post-termination exercise period for his vested options until the first anniversary of his termination date, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger, and (vii) accelerated vesting of a prorated portion of the number of his service-vesting restricted stock units that are scheduled to vest on the first annual vesting date of the applicable award following the date of termination, with the proration determined by reference to the portion of the vesting year that has elapsed since the last annual vesting date of the applicable award (or since the grant date if no vesting has occurred), rounded down to the nearest whole restricted stock unit. If the Merger closes on or before August 16, 2024, then, in addition to the foregoing severance benefits, Mr. Smith is entitled to receive (a) accelerated vesting of all unvested options and restricted stock units that vest solely based on the passage of time, with any such awards that vest based on the attainment of performance-vesting conditions being governed by the terms of the applicable award agreement, (b) if he provides transition services from his termination until closing of the Merger to the reasonable satisfaction of Homology, a lump sum cash payment of $69,345.14, and (c) an extension until the first anniversary of his termination date of the post-termination exercise period for options that vest upon closing of the Merger, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger.

Mr. Smith also entered into a consulting agreement with Homology following his termination of employment on November 17, 2023 under which he will provide consulting services related to his former duties with Homology in exchange for a monthly consulting fee of $4,564.50. The consulting agreement will expire in February 2024 unless earlier terminated as provided in the agreement.

Charles Michaud, Jr.

Under Mr. Michaud's employment agreement, entered into on November 16, 2023, he is entitled to (a) an annual base salary of $313,308, (b) a payment equal to 50% of his target annual bonus for 2023, subject to his continued employment through the payment date, or the Michaud Annual Bonus, and (c) a lump sum cash payment in an amount equal to his base salary for the number of days elapsed from July 27, 2023 through the closing of the Merger, subject to his continued employment and a maximum of seven months of salary (i.e., a maximum of $182,763), or the Michaud Change in Control Bonus. If Homology terminates Mr. Michaud without "cause" or he resigns for "good reason," subject to his timely execution of a separation agreement, including a release of claims, and his compliance with restrictive covenants (including a non-competition covenant), he is entitled to receive (i) an amount in cash equal to nine months of his base salary, (ii) payment of the Michaud Annual Bonus if it is unpaid as of the date of termination, (iii) direct payment of or reimbursement for continued medical, dental or vision coverage pursuant to COBRA for up to 9 months, less the amount he would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on his termination date, (iv) an extension of the post-termination exercise period for his vested and outstanding options until the first anniversary of his termination date, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger, (v) accelerated vesting of a prorated portion of the number of his unvested service-vesting restricted stock units that are scheduled to vest on the first annual vesting date of the applicable award following the date of termination, with the proration determined by reference to the portion of the vesting year that has elapsed since the last annual vesting date of the applicable award (or since the grant date if no vesting has occurred) rounded down to the nearest whole restricted stock unit, (vi) if the termination is before the Merger closes, a lump sum cash payment of $78,327.00, or the Partial Michaud Change in Control Bonus, (vii) if the termination is before the Merger closes, the Merger closes on or before August 16, 2024 and he provides transition services from his termination until closing of the Merger to the reasonable satisfaction of Homology, the excess of the Michaud Change in Control Bonus (determined disregarding the continued service requirement) over the Partial Michaud Change in Control Bonus, and (viii) if the termination is on or during the 12 months following the date the Merger closes, (A) accelerated vesting of all unvested service-vesting equity or equity-based awards and (B) an extension of the post-termination exercise period for his options that vest upon the closing of the Merger until the first anniversary of his termination date, provided that no options will remain outstanding past the expiration date of the award and each option will be subject to early termination in connection with a corporate transaction, including the Merger.

Michael Blum

Mr. Blum previously terminated employment with Homology, but continues to provide services to Homology under a consulting agreement, dated August 3, 2023. Under his consulting agreement, Mr. Blum provides consulting services related to his former duties with Homology in exchange for (i) a consulting fee of $350 per hour, (ii) continued vesting of his outstanding options during the consulting period, (iii) if Homology terminates the consulting period on or within 12 months following a change in control (including the Merger) for any reason other than due to his breach of the consulting agreement or his restrictive covenants, accelerated vesting of his outstanding options and restricted stock units, and (iv) an extension of the post-termination exercise period for his vested options until August 3, 2024. The consulting agreement will expire on August 3, 2024 unless earlier terminated as provided in the agreement.

Julie Jordan, M.D.

Dr. Jordan and previously terminated employment with Homology and is not entitled to receive compensatory payments in connection with the Merger. Under her separation agreement, Dr. Jordan's vested options remain outstanding and may be exercised until August 3, 2024.

Golden Parachute Compensation

In accordance with the requirements of Item 402(t) of Regulation S-K, the table below sets forth the amount of payments and benefits that each named executive officer would receive in connection with the Merger, assuming (i) the completion of the Merger occurs on February 5, 2024, (ii) Dr. Alloway and Mr. Michaud each experience a qualifying termination of employment on such date, (iii) Dr. Alloway's and Mr. Michaud's annual base salary and annual target bonus remain unchanged from that in effect as of the date of this filing, (iv) the value of the accelerated vesting of any Homology equity award is calculated assuming a market price per share of Homology common stock equal to $0.56 (which equals the average closing trading price of Homology common stock over the first five business days following the first public announcement of the transactions contemplated by the Merger Agreement on November 16, 2023), (v) no named executive officers receive any additional equity grants prior to completion of the Merger, (vi) each named executive officer has properly executed (or will properly execute) any required releases necessary in order to receive the payments and benefits, and (v) each named executive officer properly completes the required transition services necessary in order to receive certain payments. The amounts in the following table are estimates based on multiple assumptions that may not actually occur and do not include amounts that were vested as of February 5, 2024. In addition, certain amounts will vary depending on the actual date of closing of the Merger and whether or not a named executive officer experiences a qualifying termination of employment. As a result, the actual amounts, if any, to be received by a named executive officer may differ in material respects from the amounts set forth below.

The compensation summarized in the table and footnotes and narrative disclosure below is subject to a non-binding, advisory vote of the shareholders of Homology, as described in "*Proposal 4: Approval of the Merger Compensation Proposal*" on page 249 of this proxy statement.

Name	Cash ($)(2)	Perquisites/ Benefits ($)(3)	Equity ($)(4)	Other ($)(5)	Total ($)
Paul Alloway, Ph.D.	$ 462,425	$ 27,746	$ 9,250	$ 269,748	$ 769,169
Albert Seymour, Ph.D. (1)	$ 1,208,588	$ 52,839	$ 33,797	$ 85,760	$ 1,380,984
Charles Michaud, Jr.	$ 234,981	$ 14,099	$ 2,535	$ 182,763	$ 434,378

(1) Dr. Seymour, Homology's former President and Chief Executive Officer, terminated employment with Homology on November 17, 2023.

(2) For Dr. Seymour, the amounts in this column represent the aggregate cash severance payments he has received and is entitled to receive in the future pursuant to his separation agreement and assuming the Merger is completed on or prior to August 16, 2024. For Dr. Alloway and Mr. Michaud, the amounts in this column represent the aggregate cash severance payments that each named executive officer would be entitled to receive pursuant to the terms of his employment agreement with Homology upon a termination of his employment by Homology without cause or upon the named executive officer's resignation for good reason on the Merger completion date. See "Interests of Homology Directors and Executive Officers in the Merger—Executive Employment Arrangements" above for a description of each named executive officer's severance rights under such individual's separation agreement or employment agreement. These are double-trigger amounts payable in connection with the Merger only if the named executive officer incurs a qualifying termination of employment.

(3) The amounts in this column represent the estimated cost of premiums for continued medical, dental or vision coverage pursuant to COBRA for up to 18 months for Dr. Seymour and 12 months for the other named executive officers, less the amount the named executive officers would have had to pay to receive such coverage as an active employee based on the cost sharing levels in effect on such individual's termination date. These amounts are double-trigger amounts payable in connection with the Merger only if the named executive officer incurs a qualifying termination of employment.

(4) The amounts in this column represent the estimated value of the accelerated vesting of each named executive officers Homology Restricted Stock Units and Homology ITM Options. The amount shown for Homology Restricted Stock Units equals the number of accelerated Homology Restricted Stock Units multiplied by $0.56 (which is the average closing trading price of Homology common stock over the first

five business days following the first public announcement of the transactions contemplated by the Merger Agreement on November 16, 2023). The amount shown for Homology ITM Options is $0 for each named executive officer because none of the named executive officers held unvested Homology ITM Options as of February 5, 2024. The treatment of the named executive officers' equity awards is described in more detail above in the Section "*Interests of Homology Directors and Executive Officers in the Merger—Treatment of Homology Equity Awards*." For Dr. Seymour, this is a double-trigger amount payable in connection with the Merger as a result of his qualifying termination of employment on November 17, 2023 and includes vesting acceleration that occurred upon his termination of employment as well as vesting acceleration that will occur upon the Merger if the Merger is completed on or prior to August 16, 2024. For Dr. Alloway and Mr. Michaud, these are single-trigger amounts occurring automatically on the closing of the Merger if the named executive officer remains employed until the Merger completion date.

(5) For Dr. Seymour, the amounts in this column represent the lump sum payment that will become payable upon completion of the Merger if the Merger is completed on or before August 16, 2024 and he provides transition services from his employment termination date through the Merger completion date. For Dr. Seymour, this is a double-trigger amount payable in connection with the Merger as a result of a qualifying termination of employment. For Dr. Alloway and Mr. Michaud, the amounts in this column represent the change in control bonus that will become payable upon completion of the Merger if the named executive officer remains employed until the Merger completion date. For Dr. Alloway and Mr. Michaud, these amounts are single-trigger payments.

Director Position Following the Merger

Arthur Tzianabos, Ph.D. and Mary Thistle are currently directors of Homology and will each continue as a director of the combined company after the Effective Time.

Interests of Q32 Directors and Executive Officers in the Merger

In considering the recommendation of the Q32 board of directors with respect to approving the Merger, stockholders should be aware that certain members of Q32's directors and executive officers have interests in the Merger that are different from, or in addition to, the interests of Q32 stockholders generally. These interests may present them with actual or potential conflicts of interest, and these interests, to the extent material, are described below.

The board of directors of Q32 was aware of these potential conflicts of interest and considered them, among other matters, in reaching its decision to approve the Merger Agreement and the Merger, and to recommend that the Q32 stockholders approve the Merger as contemplated by this proxy statement/prospectus.

Ownership Interests

As of December 31, 2023, Q32's non-employee directors and executive officers beneficially owned, in the aggregate, approximately 42.70% of the shares of Q32 capital stock, which for purposes of this subsection excludes any Q32 shares issuable upon exercise of Q32 stock options held by such individuals. Such shares of Q32 capital stock will be converted into shares of Homology common stock at the Effective Time. Each of Q32's officers, directors and affiliated stockholders have also entered into a support agreement in connection with the Merger. For a more detailed discussion of the support agreements, please see the section titled "*Agreements Related to the Merger—Support Agreements*" in this proxy statement/prospectus.

Stock Options

Q32's directors and executive officers currently hold options, subject to vesting, to purchase shares of Q32 common stock. At the Effective Time, each option to purchase shares of Q32 common stock outstanding immediately prior to the Effective Time under the Q32 Bio Inc. 2017 Stock Option Plan and Grant Plan, as

amended, or the Q32 2017 Plan, will automatically be converted into an option to purchase shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares at a per share exercise price equal to the existing exercise price of such option multiplied by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent. Homology will assume the Q32 2017 Plan. All rights with respect to Q32 common stock subject to Q32 options assumed by Homology will be converted into rights with respect to Homology common stock. Any restrictions on the exercise of any Q32 option assumed by Homology will continue following the conversion and the term, exercisability, vesting schedules and other provisions of assumed Q32 options will generally remain unchanged.

The following table details the outstanding options held by Q32's directors and executive officers as of December 31, 2023.

Executive Officers	**Shares of Common Stock Underlying Options (#)**	**Volume Weighted Average Option Exercise Price ($)**
Jodie Morrison (1)	6,712,593	0.38
Lee Kalowski	352,017	0.82
Jason A. Campagna	2,201,213	0.35
Shelia M. Violette	1,824,005	0.31
Non-Employee Directors		
Jayson Punwani (2)	—	—
David Grayzel	—	—
Mark Iwicki	933,848	0.35
Kathleen LaPorte	266,814	0.35
Bill Lundberg	231,875	0.20
Isaac Manke	—	—
Diyong Xu	—	—

(1) Ms. Morrison commenced part-time employment with Q32 on September 8, 2022 and became a full-time employee on November 1, 2022.
(2) Mr. Punwani resigned as a member of Q32's board of directors effective as of January 24, 2024.

Management Following the Merger

As described elsewhere in this proxy statement/prospectus, including in the section titled "*Management Following the Merger*," seven of Q32's directors and all of Q32's executive officers are expected to become the directors and executive officers, respectively, of the combined company upon the closing of the Merger, in connection with which they may enter into employment agreements comparable to those of applicable executive officers of a publicly traded company, as disclosed in greater detail under "*Q32 Executive Compensation – Employment Agreements*" below.

Indemnification and Insurance

For a discussion of the indemnification and insurance provisions related to the Q32 directors and officers under the Merger Agreement, please see the section titled "*The Merger Agreement-Indemnification and Insurance for Directors and Officers*" below.

Compensation Committee Interlocks and Insider Participation

In connection with the closing of the Merger, the combined company's board of directors is expected to select members of the compensation committee. Each member of the compensation committee is expected to be

a "non-employee" director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and independent within the meaning of the independent director guidelines of Nasdaq. None of the proposed combined company's executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers who is proposed to serve on the combined company's board of directors or compensation committee following the completion of the Merger.

Non-Employee Director Compensation

During the fiscal year ended December 31, 2023, Q32 did not have a formal non-employee director compensation program; however, Q32 has entered into letter agreements with its independent, non-employee directors that provide for quarterly payments of $10,000 for Ms. LaPorte and Mr. Lundberg and $12,500 for Mr. Iwicki. No non-employee director received any equity grants in 2023. Following completion of the Merger, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing, and which will be designed to enable the combined company to attract and retain, on a long-term basis, highly qualified non-employee directors.

2024 Stock Option and Incentive Plan

On February 11, 2024, Homology's board of directors, subject to stockholder approval and the closing, adopted the 2024 Stock Option and Incentive Plan, or the 2024 Plan. If Homology's stockholders approve the 2024 Plan, it will become effective upon the closing of the Merger. For a summary of the 2024 Plan, see Proposal No. 5 in this proxy statement/prospectus.

2024 Employee Stock Purchase Plan

On February 11, 2024, Homology's board of directors, subject to stockholder approval and the closing, adopted the 2024 Employee Stock Purchase Plan, or the 2024 ESPP. If Homology's stockholders approve the 2024 ESPP, it will become effective upon the closing of the Merger. For a summary of the 2024 ESPP, see Proposal No. 6 in this proxy statement/prospectus.

Effective Time of the Merger

The Merger Agreement requires the parties to consummate the Merger no later than the second (2^{nd}) business day after all of the conditions to the consummation of the Merger contained in the Merger Agreement are satisfied or waived, including the adoption of the Merger Agreement by the Q32 stockholders and the approval by the Homology stockholders of the issuance of Homology common stock and the other transactions proposed under the Merger Agreement, other than those conditions that by their nature are to be satisfied at the closing of the Merger. The Merger will become effective upon the filing of a certificate of merger with the Secretary of State of the State of Delaware or at such later time as is agreed by Homology and Q32 and specified in the certificate of merger. Neither Homology nor Q32 can predict the exact timing of the consummation of the Merger.

Regulatory Approvals

In the United States, Homology must comply with applicable federal and state securities laws and the rules and regulations of Nasdaq in connection with the issuance of shares of Homology common stock to Q32's stockholders in connection with the transactions contemplated by the Merger Agreement and the filing of this proxy statement/prospectus with the SEC. Homology does not intend to seek any regulatory approval from antitrust authorities to consummate the transactions.

Anticipated Accounting Treatment

The Merger is expected to be treated by Homology as a reverse merger and will be accounted for as a reverse recapitalization in accordance with U.S. GAAP. For accounting purposes, Q32 is considered to be issuing

stock for primarily cash and cash equivalents, short term investments, and other non-operating assets of Homology based on the terms of the Merger Agreement and other factors, including: (i) Q32's stockholders will own a substantial majority of the voting rights of the combined company; (ii) Q32 will designate a majority (seven of nine) of the initial members of the board of directors of the combined company; (iii) Q32's executive management team will become the management of the combined company; and (iv) the combined company will be named Q32 Bio Inc. and be headquartered in Waltham, Massachusetts. Accordingly the Merger is expected to be treated as the equivalent of Q32 issuing stock for primarily cash and cash equivalents, short-term investments and non-operating assets. The net assets of Homology will be recorded as of the acquisition date in the financial statements of Q32 and the reported operating results prior to the Merger will be those of Q32. See the "*Unaudited Pro Forma Condensed Combined Financial Information*" elsewhere in this proxy statement/prospectus for additional information.

Nasdaq Stock Market Listing

Shares of Homology common stock are currently listed on Nasdaq under the symbol "FIXX." Homology has agreed to use commercially reasonable efforts, to the extent required by the rules and regulations of the Nasdaq, to cause the shares of Homology common stock being issued in the Merger to be approved for listing (subject to notice of issuance) on Nasdaq at or prior to the Effective Time and to assist Q32 in preparing and filing an initial listing application on Nasdaq.

In addition, under the Merger Agreement, each of Homology's and Q32's obligation to complete the Merger is subject to the satisfaction or waiver by each of the parties, at or prior to the Merger, of various conditions, including that the shares of Homology common stock to be issued in the Merger have been approved for listing (subject to official notice of issuance) on Nasdaq as of the closing of the Merger. In the event that the shares of Homology common stock to be issued in the Merger are not approved for listing on Nasdaq, it is possible that Homology and Q32 may mutually agree to waive the applicable condition and nonetheless proceed with completion of the Merger. If such condition is waived, Homology will not recirculate an updated proxy statement/prospectus, nor will it solicit a new vote of stockholders prior to proceeding with the Merger. Accordingly, you are advised that Homology stockholders will not have certainty regarding the listing of the combined company's shares at the time you are asked to vote at the special meeting described below.

If the Nasdaq Listing Application is accepted, Q32 anticipates that the common stock of the combined company will be listed on Nasdaq following the closing of the Merger under the trading symbol "QTTB." As of February 13, 2024, the closing stock price of Homology common stock was $0.7067.

Appraisal Rights and Dissenters' Rights

Under the DGCL, Homology stockholders are not entitled to appraisal rights in connection with the Merger.

Q32 stockholders are entitled to appraisal rights in connection with the Merger under Section 262 of the DGCL.

The discussion below is not a complete summary regarding Q32 stockholders' appraisal rights under Delaware law and is qualified in its entirety by reference to the text of the relevant provisions of Delaware law, which are attached as *Annex K*. Stockholders intending to exercise appraisal rights should carefully review *Annex K*. Failure to follow precisely any of the statutory procedures set forth in *Annex K* may result in a termination or waiver of these rights. This summary does not constitute legal or other advice, nor does it constitute a recommendation that Q32 stockholders exercise their appraisal rights under Delaware law.

Under Section 262, where a merger is adopted by stockholders by written consent in lieu of a meeting of stockholders pursuant to Section 228 of the DGCL, either the constituent corporation before the effective date of such merger or the surviving corporation, within ten days after the effective date of such merger, must notify

each stockholder of the constituent corporation entitled to appraisal rights of the approval of such merger, the effective date of such merger and that appraisal rights are available.

If the Merger is completed, within ten days after the effective date of the Merger, Q32 will notify its stockholders that the Merger has been approved, the effective date of the Merger and that appraisal rights are available to any stockholder who has not approved the Merger. Holders of shares of Q32 common stock who desire to exercise their appraisal rights must deliver a written demand for appraisal to Q32 within 20 days after the date of mailing of that notice, and that stockholder must not have delivered a written consent approving the Merger. A demand for appraisal must reasonably inform Q32 of the identity of the stockholder and that such stockholder intends thereby to demand appraisal of the shares of Q32 common stock held by such stockholder. Failure to deliver a written consent approving the Merger will not in and of itself constitute a written demand for appraisal satisfying the requirements of Section 262. All demands for appraisal should be addressed to Q32 Bio Inc., c/o Goodwin Procter LLP, 100 Northern Avenue, Boston, MA 02210, Attention: John T. Haggerty; Jacqueline Mercier; Tevia K. Pollard; Sarah Ashfaq, and should be executed by, or on behalf of, the record holder of shares of Q32 common stock. ALL DEMANDS MUST BE RECEIVED BY Q32 WITHIN 20 DAYS AFTER THE DATE Q32 MAILS A NOTICE TO ITS STOCKHOLDERS NOTIFYING THEM THAT THE MERGER HAS BEEN APPROVED, THE EFFECTIVE DATE OF THE MERGER AND THAT APPRAISAL RIGHTS ARE AVAILABLE TO ANY STOCKHOLDER WHO HAS NOT APPROVED THE MERGER.

If you fail to deliver a written demand for appraisal within the time period specified above, you will be entitled to receive the merger consideration for your shares of Q32 common stock as provided for in the Merger Agreement, but you will have no appraisal rights with respect to your shares of Q32 common stock.

To be effective, a demand for appraisal by a holder of shares of Q32 common stock must be made by, or in the name of, the registered stockholder, fully and correctly, as the stockholder's name appears on the stockholder's stock certificate(s). Beneficial owners who do not also hold the shares of record may not directly make appraisal demands to Q32. The beneficial owner must, in these cases, have the registered owner, such as a broker, bank or other custodian, submit the required demand in respect of those shares. If shares are owned of record in a fiduciary capacity, such as by a trustee, guardian or custodian, execution of a demand for appraisal should be made by or for the fiduciary; and if the shares are owned of record by more than one person, as in a joint tenancy or tenancy in common, the demand should be executed by or for all joint owners. An authorized agent, including an authorized agent for two or more joint owners, may execute the demand for appraisal for a stockholder of record; however, the agent must identify the record owner or owners and expressly disclose the fact that, in executing the demand, he or she is acting as agent for the record owner. A record owner, such as a broker, who holds shares as a custodian for others, may exercise the record owner's right of appraisal with respect to the shares held for one or more beneficial owners, while not exercising this right for other beneficial owners. In that case, the written demand should state the number of shares as to which appraisal is sought. Where no number of shares is expressly mentioned, the demand will be presumed to cover all shares held in the name of the record owner. In addition, the stockholder must continuously hold the shares of record from the date of making the demand through the Effective Time.

If you hold your shares of Q32 common stock in a brokerage account or in other custodian form and you wish to exercise appraisal rights, you should consult with your bank, broker or other custodian to determine the appropriate procedures for the making of a demand for appraisal by the custodian.

At any time within 60 days after the Effective Time, any stockholder who has demanded an appraisal, but has neither commenced an appraisal proceeding or joined an appraisal proceeding as a named party, has the right to withdraw such stockholder's demand and accept the terms of the Merger by delivering a written withdrawal to Q32. If, following a demand for appraisal, you have withdrawn your demand for appraisal in accordance with Section 262, you will have the right to receive the merger consideration for your shares of Q32 common stock.

Within 120 days after the effective date of the Merger, any stockholder who has delivered a demand for appraisal in accordance with Section 262 will, upon written request to the surviving corporation, be entitled to receive a written statement setting forth the aggregate number of shares not voted in favor of the Merger Agreement and with respect to which demands for appraisal rights have been received and the aggregate number of holders of these shares. This written statement will be mailed to the requesting stockholder within ten days after the stockholder's written request is received by the surviving corporation or within ten days after expiration of the period for delivery of demands for appraisal, whichever is later. Within 120 days after the effective date of the Merger, either the surviving corporation or any stockholder who has delivered a demand for appraisal in accordance with Section 262 may file a petition in the Delaware Court of Chancery demanding a determination of the fair value of the shares held by all such stockholders. Upon the filing of the petition by a stockholder, service of a copy of the petition must be made upon the surviving corporation. The surviving corporation has no obligation to file a petition in the Delaware Court of Chancery in the event there are dissenting stockholders, and Q32, which is expected to be the surviving corporation, has no present intent to file a petition in the Delaware Court of Chancery. Accordingly, the failure of a stockholder to file a petition within the period specified could nullify the stockholder's previously written demand for appraisal.

If a petition for appraisal is duly filed by a stockholder and a copy of the petition is delivered to the surviving corporation, the surviving corporation will then be obligated, within 20 days after receiving service of a copy of the petition, to provide the Delaware Court of Chancery with a duly verified list containing the names and addresses of all stockholders who have demanded an appraisal of their shares and with whom agreements as to the value of their shares have not been reached by the surviving corporation. After notice to dissenting stockholders who demanded appraisal of their shares, the Delaware Court of Chancery is empowered to conduct a hearing upon the petition, and to determine those stockholders who have complied with Section 262 and who have become entitled to the appraisal rights provided thereby. The Delaware Court of Chancery may require the stockholders who have demanded appraisal for their shares to submit their stock certificates to the Register in Chancery for notation thereon of the pendency of the appraisal proceedings; and if any stockholder fails to comply with that direction, the Delaware Court of Chancery may dismiss the proceedings as to that stockholder.

After determination of the stockholders entitled to appraisal of their shares, the Delaware Court of Chancery will appraise the "fair value" of the shares owned by those stockholders. This value will be exclusive of any element of value arising from the accomplishment or expectation of the Merger, but may include a fair rate of interest, if any, upon the amount determined to be the fair value. When the value is determined, the Delaware Court of Chancery will direct the payment of the value, with interest thereon accrued during the pendency of the proceeding, if the Delaware Court of Chancery so determines, to the stockholders entitled to receive the same, upon surrender by the holders of the certificates representing those shares. At any time before the entry of judgment in the proceedings, the surviving corporation may pay to each stockholder entitled to appraisal an amount in cash, in which case interest shall accrue thereafter only upon the sum of (i) the difference, if any, between the amount so paid and the fair value of the shares subject to appraisal as determined by the Delaware Court of Chancery and (ii) interest theretofore accrued, unless paid at that time.

In determining fair value, and, if applicable, a fair rate of interest, the Delaware Court of Chancery is required to take into account all relevant factors. In *Weinberger v. UOP, Inc.*, the Delaware Supreme Court discussed the factors that could be considered in determining fair value in an appraisal proceeding, stating that "proof of value by any techniques or methods which are generally considered acceptable in the financial community and otherwise admissible in court" should be considered, and that "fair price obviously requires consideration of all relevant factors involving the value of a company."

Section 262 provides that fair value is to be "exclusive of any element of value arising from the accomplishment or expectation of the merger." In *Cede & Co. v. Technicolor, Inc.*, the Delaware Supreme Court stated that this exclusion is a "narrow exclusion [that] does not encompass known elements of value," but which rather applies only to the speculative elements of value arising from such accomplishment or expectation. In *Weinberger*, the Delaware Supreme Court construed Section 262 to mean that "elements of future value, including the nature of the enterprise, which are known or susceptible of proof as of the date of the merger and not the product of speculation, may be considered."

You should be aware that the fair value of your shares as determined under Section 262 could be more than, the same as, or less than the value that you are entitled to receive under the terms of the Merger Agreement. An opinion of an investment banking firm as to the fairness, from a financial point of view, of the consideration payable in a merger is not an opinion as to, and does not in any manner address, fair value under Section 262.

Costs of the appraisal proceeding may be imposed upon the surviving corporation and the stockholders participating in the appraisal proceeding by the Delaware Court of Chancery as the Court deems equitable in the circumstances. Upon the application of a stockholder, the Delaware Court of Chancery may order all or a portion of the expenses incurred by any stockholder in connection with the appraisal proceeding, including, without limitation, reasonable attorneys' fees and the fees and expenses of experts, to be charged pro rata against the value of all shares entitled to appraisal. In the absence of such a determination of assessment, each party bears its own expenses. Any stockholder who had demanded appraisal rights will not, after the Effective Time, be entitled to vote shares subject to that demand for any purpose or to receive payments of dividends or any other distribution with respect to those shares, other than with respect to payment as of a record date prior to the Effective Time; however, if no petition for appraisal is filed within 120 days after the Effective Time, or if the stockholder delivers a written withdrawal of his or her demand for appraisal and an acceptance of the terms of the Merger within 60 days after the Effective Time, then the right of that stockholder to appraisal will cease and that stockholder will be entitled to receive the merger consideration for shares of his or her Q32 common stock pursuant to the Merger Agreement. Any withdrawal of a demand for appraisal made more than 60 days after the Effective Time may only be made with the written approval of the surviving corporation. No appraisal proceeding in the Delaware Court of Chancery will be dismissed as to any stockholder without the approval of the court.

Failure to follow the steps required by Section 262 for perfecting appraisal rights may result in the loss of appraisal rights. In view of the complexity of Section 262, stockholders who may wish to dissent from the Merger and pursue appraisal rights should consult their legal advisors.

THE MERGER AGREEMENT

The following is a summary of the material terms of the Merger Agreement. A copy of the Merger Agreement is attached to this proxy statement/prospectus as Annex A and is incorporated by reference into this proxy statement/prospectus. The Merger Agreement has been attached to this proxy statement/prospectus to provide you with information regarding its terms. It is not intended to provide any other factual information about Homology, Q32 or Merger Sub. The following description does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement. You should refer to the full text of the Merger Agreement for details of the Merger and the terms and conditions of the Merger Agreement.

The Merger Agreement contains representations and warranties that Homology and Merger Sub, on the one hand, and Q32, on the other hand, have made to one another as of specific dates. These representations and warranties have been made for the benefit of the other parties to the Merger Agreement and may be intended not as statements of fact but rather as a way of allocating the risk to one of the parties if those statements prove to be incorrect. In addition, the assertions embodied in the representations and warranties are qualified by information in confidential disclosure schedules exchanged by the parties in connection with signing the Merger Agreement. While Homology and Q32 do not believe that these disclosure schedules contain information required to be publicly disclosed under the applicable securities laws, other than information that has already been so disclosed, the disclosure schedules do contain information that modifies, qualifies and creates exceptions to the representations and warranties set forth in the attached Merger Agreement. Accordingly, you should not rely on the representations and warranties as current characterizations of factual information about Homology or Q32, because they were made as of specific dates, may be intended merely as a risk allocation mechanism between Homology, Merger Sub and Q32 and are modified by the disclosure schedules.

Structure

Subject to the terms and conditions of the Merger Agreement, and subject to the applicable provisions of Delaware law, at the completion of the Merger, Merger Sub, a wholly-owned subsidiary of Homology formed by Homology in connection with the Merger, will merge with and into Q32, with Q32 surviving as a wholly-owned subsidiary of Homology.

Completion and Effectiveness of the Merger

The closing of the Merger will take place remotely no later than the second business day after all of the conditions precedent set forth in Article VI of the Merger Agreement have been satisfied or waived (other than those conditions that, by their nature, are to be satisfied at the closing of the Merger) or at such other time, date and place as Homology and Q32 may mutually agree in writing. Homology and Q32 are working to complete the Merger as quickly as practicable and expect that the Merger will be completed during the first quarter of 2024, subject to the approval of Homology's stockholders. However, Homology and Q32 cannot predict the completion of the Merger or the exact timing of the completion of the Merger because it is subject to various conditions.

Merger Consideration

At the Effective Time (after giving effect to the Pre-Closing Financing), each share of Q32 common stock (excluding Q32 common stock issued in the Pre-Closing Financing) will be converted solely into the right to receive a number of shares of Homology common stock equal to the total number of Q32 Merger Shares described in the section titled "*The Merger Agreement–Q32 Merger Shares*" multiplied by the applicable Q32 stockholder's percentage interest in Q32 as set forth on the Allocation Certificate required under the Merger Agreement. If any Q32 common stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable agreement with Q32, then the shares of Homology common stock issued in exchange for such shares of Q32 common stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology common stock will be marked with appropriate legends.

At the Effective Time, by virtue of the Merger, upon the terms and subject to the conditions set forth in the Merger Agreement, each share of Q32 common stock issued in the Pre-Closing Financing will be converted solely into the right to receive a number of shares of Homology common stock equal to the amount of the Pre-Closing Financing Merger Shares described in the section titled "*The Merger Agreement–Pre-Closing Financing Merger Shares*" multiplied by the percentage of the proceeds of the Pre-Closing Financing represented by the applicable stockholder's investment in the Pre-Closing Financing, as set forth on the Allocation Certificate required under the Merger Agreement.

No fractional shares of Homology common stock will be issued in connection with the Merger, and no certificates or scrip for any such fractional shares will be issued, with no cash being paid for any fractional share eliminated by such rounding. Any fractional shares of Homology common stock resulting from the conversion of Q32 capital stock into the right to receive a number of Homology common stock a holder of Q32 common stock would otherwise be entitled to receive shall be aggregated together first prior to eliminating any remaining fractional share.

At the Effective Time, by virtue of the Merger, upon the terms and subject to the conditions set forth in the Merger Agreement, each share of common stock, $0.01 par value per share, of Merger Sub issued and outstanding immediately prior to the Effective Time will be converted into and exchanged for one validly issued, fully paid and nonassessable share of common stock, $0.0001 par value per share, of the combined company. If applicable, each stock certificate of Merger Sub evidencing ownership of any such shares shall, as of the Effective Time, evidence ownership of such shares of common stock of the combined company until presented for transfer or exchange.

All Q32 preferred stock will be converted into Q32 common stock as of immediately prior to the Effective Time in accordance with, and pursuant to the terms and conditions of, the organizational documents of Q32.

Allocation Certificate

In accordance with the Merger Agreement, prior to the closing date, Q32 will prepare and deliver to Homology a certificate, or the Allocation Certificate, setting forth (as of immediately prior to the Effective Time): (a) the name and address of each holder of Q32 Capital Stock, Q32 Options or Q32 Warrants, and the number and type of Q32 Capital Stock held as of the closing date for each such holder or, with respect to each Q32 Option or Q32 Warrant, the grant date of such Q32 Option or Q32 Warrant and the number of shares subject to such Q32 Option or Q32 Warrant, (b) the number of shares of Homology common stock to be issued to such holder pursuant to the Merger Agreement in respect of the Q32 Capital Stock held by such holder as of immediately prior to the Effective Time or, with respect to each Q32 Option or Q32 Warrant, the number of shares of Homology common stock to be subject to the applicable assumed option or assumed warrant as of immediately prior to the Effective Time following the conversion of such Q32 Option or Q32 Warrant into an assumed option or assumed warrant in accordance with the Merger Agreement, and (c) each investor in the Pre-Closing Financing, the total investment to be made by such investor in the Pre-Closing Financing, the percentage of the proceeds of the Pre-Closing Financing represented by such stockholder's investment in the Pre-Closing Financing, and the number of shares of Homology common stock to be issued to such holder pursuant to the Merger Agreement.

Q32 Merger Shares

The formula to calculate Q32 Merger Shares, subject to the terms and conditions of the Merger Agreement, is the product determined by multiplying (i) the Post-Closing Homology Shares by (ii) the Q32 Allocation Percentage, in which:

- "Aggregate Valuation" means the sum of (A) the Q32 Equity Value, plus (B) the Homology Valuation, plus (C) the proceeds of the Pre-Closing Financing.

- "Homology Allocation Percentage" means the quotient (rounded to four decimal places) determined by dividing (A) the Homology Valuation by (B) the Aggregate Valuation.
- "Homology Equity Value" means $80,000,000.
- "Homology Outstanding Shares" means, subject to the terms and conditions of the Merger Agreement (including, without limitation, the effects of the Reverse Stock Split), the total number of shares of Homology common stock outstanding immediately prior to the Effective Time expressed on a fully-diluted basis, and assuming, without limitation or duplication, (A) the issuance of shares of Homology common stock in respect of all Homology ITM Options that will be outstanding as of immediately prior to the Effective Time calculated on a "treasury method" basis, (B) the settlement in shares of Homology common stock of Homology Restricted Stock Units outstanding as of immediately prior to the Effective Time on a net settlement basis as provided in the Merger Agreement and (C) the exclusion of shares of Homology common stock held by Homology as treasury stock or owned by Q32 or any of its subsidiaries or any subsidiary of Homology immediately prior to the Effective Time.
- "Homology Valuation" means (A) the Homology Equity Value minus (B) the Homology Net Cash Deficiency (if any) plus (C) the Homology Net Cash Surplus (if any).
- "Q32 Allocation Percentage" means the quotient (rounded to four decimal places) determined by dividing (A) the Q32 Equity Value by (B) the Aggregate Valuation.
- "Q32 Equity Value" means $195,000,000.
- "Homology Net Cash Deficiency" means, if Homology Net Cash is less than $59,500,000, then the amount, if any, that $60,000,000 exceeds the Homology Net Cash, calculated as of 12:01 a.m., Eastern time on the closing date of the Merger; provided, however, any such calculation with respect to Taxes shall be calculated as of the end of the closing date of the Merger.
- "Post-Closing Homology Shares" means the quotient determined by dividing (A) the Homology Outstanding Shares by (B) the Homology Allocation Percentage.
- "Homology Net Cash Surplus" means, if Homology Net Cash is greater than $60,500,000, then the amount, if any, that the Homology Net Cash exceeds $60,000,000, calculated as of 12:01 a.m., Eastern time on the closing date of the Merger; provided, however, any such calculation with respect to Taxes shall be calculated as of the end of the closing date of the Merger.

For the avoidance of doubt, the proceeds from the Pre-Closing Financing will not be included in the calculation or determination of the Homology Valuation or any component thereof.

Pre-Closing Financing Merger Shares

The formula to calculate the Pre-Closing Financing Merger Shares, subject to the terms and conditions of the Merger Agreement, is the product determined by multiplying (i) the Post-Closing Homology Shares by (ii) the Pre-Closing Financing Allocation Percentage, in which:

- "Post-Closing Homology Shares" is defined above.
- "Pre-Closing Financing Allocation Percentage" means the quotient (rounded to four decimal places) determined by dividing (A) the proceeds of the Pre-Closing Financing by (B) the Aggregate Valuation.
- "Aggregate Valuation" is defined above.

Calculation of Homology's Net Cash

Pursuant to the terms of the Merger Agreement, Homology's "Net Cash" means the sum (without duplication) of the following:

- Homology's cash and cash equivalents and marketable securities determined, to the extent in accordance with GAAP, in a manner consistent with the manner in which such items were historically

determined and in accordance with the financial statements (including any related notes) contained or incorporated by reference in the Homology balance sheet;

minus:

- fees and expenses of Homology incurred in connection with the transactions contemplated by the Merger Agreement, including for the avoidance of doubt, transaction expenses of Homology to the extent unpaid as of the closing of the Merger;
- expenses of Homology incurred in connection with the disposition of Legacy Assets and any contingent obligations or liabilities arising from such dispositions;
- any and all liabilities of Homology (A) to any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries for change in control or transaction bonuses, retention bonuses, severance or similar compensatory payments or benefits that are due and payable solely as a result of the completion of the transactions contemplated by the Merger Agreement (including the employer portion of any payroll or similar taxes payable with respect thereto), (B) with respect to the unfunded or underfunded portion of any accrued employer contributions to a defined contribution or any post-retirement health and welfare benefit plan, (C) accrued but unpaid bonuses, severance and vacation or paid time off (including the employer portion of payroll or similar taxes payable with respect thereto), (D) with respect to accounts payable, accruals or other current liabilities (which will include Homology's total deductible under its director' and officers' insurance, less amounts paid prior to the closing date of the Merger (other than in connection with any stockholder litigation against Homology or any of its directors relating to the Merger Agreement or the transactions contemplated by the Merger Agreement), and (E) with respect to contractual commitments for future payments under Homology's real estate leases to the extent such commitments are incurred prior to the closing of the Merger;

plus:

- all prepaid expenses set forth in the Homology disclosure schedule;
- expenses paid, or liabilities incurred, prior to closing, that are approved in writing by Q32 to be covered by Homology's director' and officers' liability insurance in excess of the deductible and within overall policy limits;
- prepaid deposits set forth in the Homology disclosure schedule;

minus:

- that number of shares of Homology Common Stock calculated by multiplying the maximum statutory withholding rate for such holder in connection with such issuance by the number of shares of Homology common stock to be issued in connection with the vesting and settlement of each outstanding and unvested Homology restricted stock unit, and the employer portion of any payroll or similar taxes payable as a result of the vesting and settlement of each outstanding and unvested Homology restricted stock unit.

For the avoidance of doubt, (1) the cash and cash equivalents received in the Pre-Closing Financing will be excluded from the calculation of Homology Net Cash and (2) the cash, cash equivalents and marketable securities received from the disposition of Legacy Assets will be included in the calculation of Homology Net Cash.

Not less than ten business days prior to the anticipated date of the closing of the Merger as mutually agreed in good faith by Homology and Q32, Homology will deliver to Q32 a net cash schedule setting forth, in reasonable detail, Homology's good faith estimated calculation of the Homology Net Cash as of the close of business on the closing date of the Merger, prepared and certified by Homology's Chief Financial Officer (or if there is no Chief Financial Officer, the principal financial and accounting officer of Homology) together with the

relevant work papers and back-up materials used or useful in preparing the Net Cash schedule as reasonably requested by Q32.

Within five business days after delivery of such Net Cash schedule (the last day of such period referred to as the response date), Q32 will have the right to dispute any part of the Net Cash schedule by delivering a written notice to that effect to Homology (referred to herein as a dispute notice). Any dispute notice will identify in reasonable detail and, to the extent known, the nature and amounts of any proposed revisions to Homology's Net Cash calculation.

If Q32 disputes the Net Cash schedule, the parties shall attempt in good faith to resolve the disputed items and negotiate an agreed-upon determination of Net Cash. If the parties are unable to negotiate an agreed-upon determination of Net Cash or any component thereof within two calendar days after the delivery of Q32's dispute notice, any remaining disagreements will be referred to an independent auditor of recognized national standing jointly selected by Homology and Q32 or another independent auditor of recognized national standing mutually agreed upon by Homology and Q32. The determination of the amount of Net Cash made by such accounting firm shall be final and binding on Homology and Q32.

Homology's Net Cash balance is subject to numerous factors, some of which are outside of Homology's control. The actual amount of Net Cash will depend significantly on the timing of the closing of the Merger. In addition, the closing of the Merger could be delayed if Homology and Q32 are not able to agree upon the amount of Homology's Net Cash as of the cash determination time.

Treatment of Q32 Options

At the Effective Time, each option to purchase shares of Q32 common stock outstanding as of immediately prior to the Effective Time will be automatically converted into an option to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions), the number of shares of Homology common stock equal to the number of shares of Q32 common stock subject to such option as of immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement and rounding that result down to the nearest whole number of shares, at a per share exercise price determined by dividing the per share exercise price of such Q32 Option immediately prior to the Effective Time by the exchange ratio formula in the Merger Agreement, rounding up to the nearest whole cent.

Treatment of Q32 Warrants

At the Effective Time, each Q32 Warrant, to the extent outstanding and unexercised, will automatically, without any action on the part of the holder thereof, be converted into a warrant to acquire a number of shares of Homology common stock. Each Assumed Warrant will be subject to the same terms and conditions as were applicable to such corresponding Q32 Warrant immediately prior to the Effective Time (including applicable vesting conditions), except (i) each Assumed Warrant will be exercisable (or will become exercisable in accordance with its terms) for that number of whole shares of Homology common stock equal to the product of the number of shares of Q32 common stock that were issuable upon exercise of such Q32 Warrant immediately prior to the Effective Time multiplied by the exchange ratio formula in the Merger Agreement, rounded down to the nearest whole number of shares of Homology common stock, (ii) the per share exercise price for the shares of Homology common stock issuable upon exercise of such Assumed Warrant will be equal to the quotient determined by dividing the exercise price per share of Q32 common stock at which such Q32 Warrant was exercisable immediately prior to the Effective Time by the exchange ratio formula in the Merger Agreement, rounded up to the nearest whole cent, and (iii) for terms rendered inoperative by reason of the transactions contemplated by the Merger Agreement.

Treatment of Homology Common Stock, Homology Options and Homology Restricted Stock Units

Each outstanding Homology ITM Option will vest in full immediately prior to the Effective Time and remain outstanding, subject to proportionate adjustment in accordance with the terms of Homology's 2018

Incentive Award Plan or 2015 Stock Incentive Plan, as applicable, to reflect the Reverse Stock Split and the issuance of the CVRs, and each option to purchase Homology common stock that is not a Homology ITM Option will be cancelled for no consideration immediately prior to the Effective Time. Each Homology Restricted Stock Unit that is outstanding will vest in full immediately prior to the Effective Time, and the holder of each unsettled Homology Restricted Stock Unit will receive immediately prior to the Effective Time, the number of shares of Homology common stock equal to the number of vested and unsettled shares of Homology common stock underlying such Homology Restricted Stock Unit.

Homology Employee Stock Purchase Plan

In accordance with the Merger Agreement, Homology's board of directors has adopted resolutions (i) providing that (a) no offering periods or purchase periods will begin after or in addition to the Current Offering Period, (b) no payroll deductions or other contributions will be made or effected after the Current Offering Period, and (c) each Homology ESPP participant's accumulated contributions under the Homology ESPP will be returned to the participant in accordance with the terms of the Homology ESPP and (ii) terminating the Current Offering Period.

Procedures for Exchanging Q32 Stock Certificates

On or prior to the closing date of the Merger, Homology and Q32 will jointly select an exchange agent and, at the Effective Time, Homology will deposit with the exchange agent evidence of book-entry shares representing the shares of Homology common stock issuable pursuant to the terms of the Merger Agreement in exchange for shares of Q32 common stock.

Promptly after the Effective Time, the exchange agent will mail to each record holder of Q32 common stock that were converted into the right to receive Q32 Merger Shares (i) a letter of transmittal and (ii) instructions effecting the surrender of Q32 common stock in exchange for book-entry shares of Homology common stock. Upon delivery to the exchange agent of a duly executed letter of transmittal and such other documents as may reasonably be required by the exchange agent or Homology, the holder of such Q32 common stock shall be entitled to receive in exchange therefor book-entry shares representing that Q32 Merger Shares that such holder has the right to receive pursuant to the Merger Agreement. No dividends or other distributions declared or made with respect to Homology common stock with a record date after the Effective Time shall be paid to the holder of any Q32 common stock with respect to the shares of Homology common stock that such holder has the right to receive in the Merger until such holder delivers a duly executed letter of transmittal (at which time such holder shall be entitled, subject to the effect of applicable abandoned property, escheat or similar laws, to receive all such dividends and distributions, without interest).

Any shares of Homology common stock deposited with the exchange agent that remain undistributed to holders of Q32 common stock as of the date that is 180 days after the closing date of the Merger shall be delivered to Homology upon demand, and any holders of Q32 common stock who have not theretofore delivered a duly executed letter of transmittal in accordance with the terms and conditions of the Merger Agreement shall thereafter look only to Homology for satisfaction of their claims for Homology common stock and any dividends or distributions with respect to shares of Homology common stock.

HOLDERS OF Q32 COMMON STOCK SHOULD NOT SEND IN THEIR Q32 STOCK CERTIFICATES UNTIL THEY RECEIVE A LETTER OF TRANSMITTAL FROM THE EXCHANGE AGENT WITH INSTRUCTIONS FOR THE SURRENDER OF Q32 STOCK CERTIFICATES.

Directors and Officers of Homology Following the Merger

Pursuant to the Merger Agreement, each of the directors and officers of Homology who will not continue as directors or officers of Homology following the Effective Time will resign effective as of the Effective Time.

Effective as of the Effective Time, the Homology board of directors will consist of a total of nine directors, seven of whom will be designated by Q32, and two of whom will be designated by Homology. Q32 may designate individuals to serve as members of the combined company's board of directors at any time prior to three business days before the Effective Time. Homology has designated Arthur Tzianabos, Ph.D. and Mary Thistle to serve as members of the board of directors.

In addition, upon the closing of the Merger, Jodie Morrison will serve as President and Chief Executive Officer, Lee Kalowski will serve as interim Chief Financial Officer, Shelia Violette, Ph.D. will serve as Chief Scientific Officer, and Jason Campagna, M.D., Ph.D. will serve as Chief Medical Officer.

Amendment of the Restated Certificate of Incorporation of Homology

Homology agreed to amend its Restated Certificate of Incorporation to (i) change the name of Homology to "Q32 Bio Inc.," (ii) effect the proposed Reverse Stock Split and authorize sufficient Homology common stock for the issuance of Homology common stock to the stockholders of Q32 pursuant to the terms of the Merger Agreement and (iii) make such other changes as are mutually agreeable to Homology and Q32.

Potential Asset Sale

Homology is entitled, but is under no obligation, to sell, transfer, license, assign or otherwise divest any or all of the assets and rights primarily relating to Homology's HMI-103 (Adult/Pediatric PKU), HMI-203 (MPS II (Hunter Syndrome)), HMI-204 (MLD) and Homology's Capsids and AAVHSC Platform, or the Legacy Assets, including any equity interests held directly or indirectly by Homology in Oxford Biomedica (US) LLC or its affiliates, or the Oxford Assets, in a transaction or series of transactions, or the Legacy Asset Disposition.

Each party acknowledges that Homology may not be successful in completing, or may determine not to proceed with, the Legacy Asset Disposition. Notwithstanding the foregoing, Homology may not enter into any agreement with respect to the Legacy Asset Disposition that would result in a material continuing obligation or liability without the prior written consent of Q32 (not to be unreasonably withheld, conditioned or delayed), provided, however, that Homology will provide Q32 with a copy of any agreement with respect to a Legacy Asset Disposition that would be reasonably likely to result in a material continuing obligation or liability of either Homology or Q32 on or after the Effective Time at least five business days prior to entry into such agreement.

If a Legacy Asset is sold on or prior to the closing date, the cash proceeds from such disposition will be included in the calculation of Homology Net Cash pursuant to the Merger Agreement, which will have the effect of decreasing the number of shares issuable as consideration to the Q32 securityholders as of immediately prior to the Merger and proportionately increasing the relative ownership of the combined company by Homology securityholders as of immediately prior to the Merger. Any sale, transfer, license, assignment or other divestiture of Legacy Assets (other than HMI-203) after the Closing Date shall be governed by the terms and conditions of the CVR Agreement as described below in the sections titled "*The Merger Agreement–Contingent Value Rights*" and "*Agreements Related to the Merger–Contingent Value Rights Agreement*."

Representations and Warranties

The Merger Agreement contains customary representations and warranties of Homology and Q32 for a transaction of this type relating to, among other things:

- due organization; subsidiaries,
- organizational documents,
- authority; binding nature of the Merger Agreement,
- vote required,
- non-contravention; consents,

- capitalization,
- financial statements,
- absence of changes,
- absence of undisclosed liabilities,
- title to assets,
- real property; leasehold,
- intellectual property,
- agreements, contracts and commitments,
- compliance; permits; restrictions,
- legal proceedings; orders,
- tax matters,
- employee and labor matters; benefit plans,
- environmental matters,
- insurance,
- no financial advisors,
- transactions with affiliates,
- privacy and data security, and
- Pre-Closing Financing.

Q32 makes additional representations and warranties, relating to the Pre-Closing Financing described in the section titled "*Q32 Management's Discussion and Analysis of Financial Condition and Results of Operations*."

Homology makes additional representations and warranties relating to, among other things, SEC filings and the valid issuance of Homology common stock in connection with the Merger.

The representations and warranties are, in many respects, qualified by materiality and knowledge, and will not survive the Merger, but their accuracy forms the basis of one of the conditions to the obligations of Homology and Q32 to complete the Merger.

Covenants; Conduct of Business Pending the Merger

Q32 has agreed that until the earlier of the Effective Time and the termination of the Merger Agreement, except as required by applicable law, as otherwise provided by the Merger Agreement and the transactions contemplated thereby or with Homology's prior written consent (not to be unreasonably withheld, conditioned or delayed), Q32 will, and will cause its subsidiaries to, use their commercially reasonable efforts to conduct its operations in the ordinary course of its business and to preserve intact the present business organizations and goodwill of the business and the present relationships of the business with material customers and suppliers. Without limiting the generality of the foregoing, until the earlier of the Effective Time and the termination of the Merger Agreement, except as required by applicable law, as otherwise provided by the Merger Agreement and the transactions contemplated thereby or with Homology's prior written consent (not to be unreasonably withheld, conditioned or delayed), Q32 will not, and will cause its subsidiaries not to:

- sell, lease, license or otherwise dispose of any material assets of Q32, or in either case, any interests therein, except (i) pursuant to existing contracts, (ii) for sales or licensing of products to customers or (iii) otherwise in the ordinary course of its business;

- take any action with respect to any equity interests of Q32 or any of its subsidiaries, including any issuance, sale, transfer, redemption, repurchase, recapitalization, adjustment, split, combination, reclassification, dividend, distribution or any other action in respect thereof;
- create, incur, assume, guarantee or repay (other than any mandatory repayments) any indebtedness, other than in the ordinary course of business or as approved by the Q32 board of directors;
- issue, deliver, sell, grant, pledge, transfer, subject to any encumbrance or dispose of any Q32 capital stock or the securities of any subsidiary of Q32;
- create or otherwise incur any encumbrance on any material asset of Q32 or any of its subsidiaries, other than permitted encumbrances pursuant to the Merger Agreement;
- make any loans, advances or capital contributions to, or investments in, any person other than Q32;
- adversely amend or otherwise adversely modify in any material respect or terminate (excluding any expiration in accordance with its terms) any material contract, other than any amendment or modification entered into in the ordinary course of its business and containing terms not materially less favorable to Q32 than the terms of such contract in effect as of the date of the Merger Agreement;
- enter into any contract that would be required to be disclosed as a material contract if such contract were in effect as of the date of the Merger Agreement, other than any such contract entered into in the ordinary course of its business;
- except as required by any Q32 employee plan or as required by applicable law, (i) increase any salary, wage or other compensation or benefit to, or enter into or amend any employment, retention, change-in-control, termination or severance agreement with, any current or former employee, consultant, officer, director, independent contractor or other non-employee service provider of Q32 or any of its subsidiaries, other than annual increases in the base compensation in the ordinary course of business with respect to employees whose annual base compensation is less than $500,000 and provided that such increases do not, individually or in the aggregate, result in any material increase in costs, obligations or liabilities for Q32 and its subsidiaries, (ii) grant or pay any bonuses to any current or former employee, consultant, officer, director, independent contractor or other non-employee service provider of Q32 or any of its subsidiaries, other than in the ordinary course of business, or (iii) establish, enter into or adopt any new material Q32 employee plan or any plan, program, policy, agreement or arrangement that would be a material Q32 employee plan if it was in effect on the closing date of the Merger or amend or modify, in a manner that would, individually or in the aggregate, materially increase costs, obligations or liabilities for Q32 and its subsidiaries or the combined company, any existing Q32 employee plan or accelerate the vesting of any compensation (including stock options, restricted stock, restricted stock units, phantom units, warrants, other shares of capital stock or rights of any kind to acquire any shares of capital stock or equity-based awards) for the benefit of any current or former employee, consultant, officer, director, independent contractor or other non-employee service provider of Q32 or any of its subsidiaries, other than in the ordinary course of its business;
- adopt, enter into, amend or terminate any collective bargaining agreement or contract with any labor union, works council or labor organization;
- settle any material legal proceeding involving Q32 or any of its subsidiaries or relating to the transactions contemplated by the Merger Agreement;
- make or change any material tax election, change any annual tax accounting period, enter into any closing agreement with a governmental authority with respect to material taxes or settle any tax claim with respect to material taxes, in each case, except if such action would not reasonably be expected to have a material and adverse effect on Q32 following the completion of the Merger;
- take any action, or knowingly fail to take any action, where such action or failure to act would reasonably be expected to prevent the Merger from qualifying as a “plan of reorganization” for

purposes of Sections 354, 361 and 368 of the Code and within the meaning of Section 368 of the Code and Treasury Regulations Section 1.368-2(g);

- make any material change in any method of financial accounting or financial accounting practice of Q32 or any of its subsidiaries, except for any such change required by reason of a change in GAAP or other applicable financial accounting standards;
- other than in connection with actions contemplated by the Merger Agreement, adopt, approve, consent to or propose any change in the organizational documents of Q32 or any of its subsidiaries; or
- agree or commit to do any of the foregoing.

Homology has agreed that until the earlier of the Effective Time and the termination of the Merger Agreement, except as required by applicable law, as otherwise provided by the Merger Agreement and the transactions contemplated thereby or with Q32's prior written consent (not to be unreasonably withheld, conditioned or delayed), Homology will, and will cause its subsidiaries to, use their commercially reasonable efforts to conduct its operations in the ordinary course of its business and to preserve intact the present business organizations and goodwill of the business and the present relationships of the business with material customers and suppliers. Without limiting the generality of the foregoing, until the earlier of the Effective Time and the termination of the Merger Agreement, except as required by applicable law, as otherwise provided by the Merger Agreement and the transactions contemplated thereby or with Q32's prior written consent (not to be unreasonably withheld, conditioned or delayed), Homology will not, and will cause its subsidiaries not to:

- sell, lease, license or otherwise dispose of any material assets of Homology, or in either case, any interests therein, except (i) pursuant to existing contracts, (ii) for sales or licensing of products to customers or (iii) otherwise in the ordinary course of its business;
- except for the issuance of securities under the Merger Agreement, take any action with respect to any equity interests of Homology or any of its subsidiaries, including any issuance, sale, transfer, redemption, repurchase, recapitalization, adjustment, split, combination, reclassification, dividend, distribution or any other action in respect thereof;
- create, incur, assume, guarantee or repay (other than any mandatory repayments) any indebtedness;
- issue, deliver, sell, grant, pledge, transfer, subject to any encumbrance or dispose of any Homology common stock or the securities of any subsidiary of Homology;
- create or otherwise incur any encumbrance on any material asset of Homology or any of its subsidiaries, other than permitted encumbrances;
- make any loans, advance or capital contributions to, or investments in, any person other than Homology;
- adversely amend or otherwise adversely modify in any material respect or terminate (excluding any expiration in accordance with its terms) any material contract, other than any amendment or modification entered into in the ordinary course of its business and containing terms, not materially less favorable to Homology than the terms of such contract in effect as of the date of the Merger Agreement;
- enter into any contract that would be required to be disclosed as a material contract if such contract were in effect as of the date of the Merger Agreement, other than any such contract entered into in the ordinary course of business;
- except as required by any Homology employee plan, as required by applicable law or the Merger Agreement or with respect to the adoption and approval of the 2024 Plan and the 2024 ESPP (i) increase any salary, wage or other compensation or benefit to, or enter into or amend any employment, retention, change-in-control, termination or severance agreement with, any current or former employee, officer, director, independent contractor or other non-employee service provider of

Homology or any of its subsidiaries, other than as set forth in the Homology disclosure schedule to the Merger Agreement and provided that such increases do not, individually or in the aggregate, result in any material increase in costs, obligations or liabilities for Homology and its subsidiaries, (ii) grant or pay any bonuses to any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries, (iii) establish, enter into or adopt any new Homology employee plan or any plan, program, policy, agreement or arrangement that would be a material Homology employee plan if it was in effect on the closing date of the Merger or amend or modify, in a manner that would, individually or in the aggregate, materially increase costs, obligations or liabilities for Homology and its subsidiaries or the combined company, any existing Homology employee plan or accelerate the vesting of any compensation (including stock options, restricted stock, restricted stock units, phantom units, warrants, other shares of capital stock or rights of any kind to acquire any shares of capital stock or equity-based awards) for the benefit of any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries, (iv) grant any current or former employee, consultant, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries any right to receive, or pay to any current or former employee, consultant, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries any severance, change in control, transaction, retention, termination or similar compensation or benefits or increases therein, (v) take any action to accelerate any payment or benefit, or the funding of any payment or benefit, payable or to be provided to any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries, (vi) grant any new long-term incentive or equity-based awards, or amend or modify the terms of any such outstanding awards under any Homology employee plan or (vii) hire, terminate (other than for cause), promote or change the employment status or title of any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its subsidiaries;

- adopt, enter into, amend or terminate any collective bargaining agreement or contract with any labor union, works council or labor organization;
- settle any material legal proceeding involving Homology or relating to the transactions contemplated by the Merger Agreement;
- make or change any material tax election, change any annual tax accounting period, enter into any closing agreement with a governmental authority with respect to material taxes or settle any tax claim with respect to material taxes, in each case, except if such action would not reasonably be expected to have a material and adverse effect on Homology following the completion of the Merger;
- take any action, or knowingly fail to take any action, where such action or failure to act would reasonably be expected to prevent the Merger from qualifying as a "plan of reorganization" for purposes of Sections 354, 361 and 368 of the Code and within the meaning of Section 368 of the Code and Treasury Regulations Section 1.368-2(g);
- make any material change in any method of financial accounting or financial accounting practice of Homology, except for any such change required by reason of a change in GAAP or other applicable financial accounting standards;
- other than in connection with actions contemplated by the Merger Agreement, adopt, approve, consent to or propose any change in the organizational documents of Homology; or
- agree or commit to do any of the foregoing.

Contingent Value Rights

Prior to the Effective Time, Homology will declare a distribution to its common stockholders of record of the right to receive one CVR for each outstanding share of Homology common stock held by such stockholder as

of the record date, each representing the right to receive contingent payments upon the occurrence of certain events set forth in, and subject to and in accordance with the terms and conditions of, the CVR Agreement, discussed in greater detail under the section titled "*Agreements Related to the Merger–Contingent Value Rights Agreement*." The record date for such distribution will be the close of business on the last business day prior to the day on which the Effective Time occurs and the payment date for which shall be three business days after the Effective Time; *provided* that the payment of such distribution may be conditioned upon the occurrence of the Effective Time. In connection with such distribution, Homology will cause the CVR Agreement to be duly authorized, executed and delivered by Homology and Equiniti Trust Company, LLC (or such other nationally recognized rights agent agreed to between Homology and Q32).

Non-Solicitation

Each of Homology and Q32 have agreed that, except as described below, Homology and Q32 and any of their respective subsidiaries will not, nor will either party or any of its subsidiaries authorize any of the directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors or representatives retained by it or any of its subsidiaries to, directly or indirectly:

- solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of any Acquisition Proposal or Acquisition Inquiry or take any action not in the ordinary course of business that could reasonably be expected to lead to an Acquisition Proposal or Acquisition Inquiry;
- furnish any non-public information regarding such party to any person (other than Q32 or Homology) in connection with or in response to an Acquisition Proposal or Acquisition Inquiry;
- engage in discussions or negotiations with any person with respect to such Acquisition Proposal or Acquisition Inquiry;
- approve, endorse or recommend any Acquisition Proposal;
- execute or enter into any letter of intent or any contract contemplating or otherwise relating to any Acquisition Transaction; or
- publicly propose to do any of the foregoing.

An "Acquisition Inquiry" means, with respect to a party, an inquiry, indication of interest or request for information (other than an inquiry, indication of interest or request for information made or submitted by Q32, on the one hand, or Homology, on the other hand, to the other party) that would reasonably be expected to lead to an Acquisition Proposal, other than, as applicable, with respect to the potential asset sale described in the section titled, "*The Merger Agreement—Potential Asset Sale*" or the Pre-Closing Financing described in the section titled, "*Q32 Management's Discussion and Analysis of Financial Condition and Results of Operations-Recent Developments-Proposed Merger & Pre-Closing Financing*."

An "Acquisition Proposal" means, with respect to a party, any offer or proposal, whether written or oral (other than an offer or proposal made or submitted by or on behalf of Q32 or any of its affiliates, on the one hand, or by or on behalf of Homology or any of its affiliates, on the other hand, to the other party) contemplating or otherwise relating to any Acquisition Transaction with such party, other than, as applicable, with respect to the potential asset sale described in the section titled, "*The Merger Agreement—Potential Asset Sale*" or the Pre-Closing Financing described in the section titled, "*Q32 Management's Discussion and Analysis of Financial Condition and Results of Operations—Recent Developments—Proposed Merger & Pre-Closing Financing*."

An "Acquisition Transaction" means any transaction or series of related transactions (other than, as applicable, with respect to the potential asset sale described in the section titled, "*The Merger Agreement—Potential Asset Sale*" or the Pre-Closing Financing Described in the section titled, "*Q32 Management's*

Discussion and Analysis of Financial Condition and Results of Operations—Recent Developments—Proposed Merger & Pre-Closing Financing") involving:

- any merger, consolidation, amalgamation, share exchange, business combination, issuance of securities, acquisition of securities, reorganization, recapitalization, tender offer, exchange offer or other similar transaction: (A) in which a party is a constituent entity, (B) in which a person or "group" (as defined in the Exchange Act and the rules promulgated thereunder) of persons directly or indirectly acquires beneficial or record ownership of securities representing more than 20% of the outstanding securities of any class of voting securities of a party or any of its subsidiaries or (C) in which a party or any of its subsidiaries issues securities representing more than 20% of the outstanding securities of any class of voting securities of such party or any of its subsidiaries; or
- any sale, lease, exchange, transfer, license, acquisition or disposition of any business or businesses or assets that constitute or account for 20% or more of the consolidated book value or the fair market value of the assets of a party and its subsidiaries, taken as a whole.

Notwithstanding the foregoing, before obtaining the applicable approvals of the Homology stockholders required to consummate the Merger, Homology may furnish non-public information regarding Homology or its subsidiaries to, and may enter into discussions or negotiations with, any person in response to a bona fide written Acquisition Proposal by Homology, which Homology's board of determines in good faith, after consultation with Homology's financial advisors and outside legal counsel, constitutes or is reasonably likely to result in, a Superior Offer (and is not withdrawn) if:

- neither Homology nor any representative of Homology shall have breached the non-solicitation provisions of the Merger Agreement in any material respect;
- the Homology board of directors concludes in good faith based on the advice of outside legal counsel, that failure to take such action would reasonably be expected to be inconsistent with the fiduciary duties of the Homology board of directors under applicable law;
- as promptly as possible after (and in any event within forty-eight hours of) initially furnishing any such non-public information to, or entering into discussions with, such person, Homology gives Q32 written notice of the identity of such person (unless such disclosure is prohibited pursuant to the terms of any confidentiality agreement with such person or group that is in effect on the date of the Merger Agreement) to Q32, and of Homology's intention to furnish non-public information to, or enter into discussions with, such person;
- Homology receives from such person an executed confidentiality agreement in accordance with the terms and conditions of the Merger Agreement; and
- as promptly as possible after (and in any event within forty-eight hours of) furnishing any such non-public information to such person, Homology furnishes such non-public information to Q32 (to the extent such information has not been previously furnished by Homology to Q32).

Notwithstanding the foregoing, Homology and its representatives may, in any event (without the Homology board of directors having to make a determination as described in the second bullet point above, contact any person to (i) seek to clarify and understand the terms and conditions of any Acquisition Proposal made by such person solely to determine whether such Acquisition Proposal constitutes, or is reasonably likely to result in, a Superior Offer and (ii) inform such person that has made, or to the knowledge of Homology is considering making an Acquisition Proposal.

A "Superior Offer" means an unsolicited bona fide written Acquisition Proposal (with all references to 20% in the definition of Acquisition Transaction being treated as references to 50% for these purposes) that: (i) was not obtained or made as a direct or indirect result of a breach of (or violation of) the Merger Agreement and (ii) is on terms and conditions that the Q32 board of directors or the Homology board of directors, as applicable,

determines in good faith, based on such matters that it deems relevant (including the likelihood of consummation thereof, the financing terms and any termination or break-up fees and conditions to consummation thereof), as well as any written offer by the other party to the Merger Agreement to amend the terms of the Merger Agreement, and following consultation with its outside legal counsel and financial advisors, if any, are more favorable, from a financial point of view, to Q32's stockholders or Homology's stockholders, as applicable, than the terms of the Merger Agreement and the transactions contemplated thereby and is not subject to any financing conditions (and if financing is required, such financing is then fully committed to the third party).

The Merger Agreement also provides that if any party or any representative of such party receives an Acquisition Proposal or Acquisition Inquiry, then such party shall promptly (and in no event later than one business day after such party becomes aware of such Acquisition Proposal or Acquisition Inquiry) advise the other party orally and in writing of such Acquisition Proposal or Acquisition Inquiry (including the identity of the person making or submitting such Acquisition Proposal or Acquisition Inquiry, and provide a copy of the Acquisition Proposal or Acquisition Inquiry, of if the Acquisition Proposal or Acquisition Inquiry is not written, the terms thereof). The Merger Agreement provides that such party shall keep the other party reasonably informed with respect to the status and terms of any such Acquisition Proposal or Acquisition Inquiry and any material modification or material proposed modification thereto. Additionally, each party shall provide the other party with at least four business days' written notice of a meeting of its board of directors (or any committee thereof) at which its board of directors (or any committee thereof) is reasonably expected to consider an Acquisition Proposal or Acquisition Inquiry it has received.

Board Recommendation Change

Under the Merger Agreement, subject to certain exceptions described below, Homology agreed that its board of directors may not take any of the following actions, each of which are referred to in this proxy statement/prospectus as a "Homology Board Adverse Recommendation Change":

- withhold, amend, withdraw or modify (or publicly propose to withhold, amend, withdraw or modify) the recommendation of the Homology board of directors in a manner adverse to Q32;
- resolve, or have any committee of the Homology board of directors resolve, to withdraw or modify the recommendation of the Homology board of directors in a manner adverse to Q32; or
- adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal.

However, notwithstanding the foregoing, at any time prior to the approval of the proposals to be considered at the Homology stockholder meeting by the necessary vote of Homology stockholders, if Homology has received a bona fide written Superior Offer, the Homology board of directors may make a Homology Board Adverse Recommendation Change if, but only if, following the receipt of and on account of such Superior Offer:

- the Homology board of directors determines in good faith, after consultation with its outside legal counsel, that the failure to make a Homology Board Adverse Recommendation Change would reasonably be expected to be inconsistent with its fiduciary duties under applicable law;
- Homology has, and has caused its financial advisors and outside legal counsel to, during a three business day period commencing on the date that the Homology board of directors notifies Q32 in writing of its intent to make a Homology Board Adverse Recommendation Change, negotiated with Q32 in good faith to make such adjustments to the terms and conditions of the Merger Agreement so that such Acquisition Proposal ceases to constitute a Superior Offer; and
- if after Q32 shall have delivered to Homology a written offer to alter the terms or conditions of the Merger Agreement during the three business day period commencing on the date that the Homology board of directors notifies Q32 in writing of its intent to make a Homology Board Adverse Recommendation Change (or if Q32 declines to do so), the Homology board of directors shall have

determined in good faith, after consultation with its outside legal counsel, that the failure to withhold, amend, withdraw or modify the recommendation of the Homology board of directors would reasonably be expected to be inconsistent with its fiduciary duties under applicable law (after taking into account such alterations of the terms and conditions of the Merger Agreement, if any); provided that (x) Q32 receives written notice from Homology confirming that the Homology board of directors has determined to change its recommendation during such three business day period, which notice shall include a description in reasonable detail of the reasons for such Homology Board Adverse Recommendation Change, and written copies of any relevant proposed transaction agreements with any party making a potential Superior Offer, (y) during any such five business day period, Q32 shall be entitled to deliver to Homology one or more counterproposals to such Acquisition Proposal and Homology will, and cause its representatives to, negotiate with Q32 in good faith (to the extent Q32 desires to negotiate) to make such adjustments in the terms and conditions of the Merger Agreement so that the applicable Acquisition Proposal ceases to constitute a Superior Offer and (z) in the event of any material amendment to any Superior Offer (including any revision in price or percentage of the combined company that Homology's stockholders would receive as a result of such potential Superior Offer), Homology shall be required to provide Q32 with notice of such material amendment and such three business day period shall be extended, if applicable, to ensure that at least two business days remain in the requisite notice period following such notification during which the parties shall comply again with the requirements of the Merger Agreement and the Homology board of directors shall not make a Homology Board Adverse Recommendation Change prior to the end of such notice period as so extended.

Under the Merger Agreement, subject to certain exceptions described below, Q32 has agreed that its board of directors may not take any of the following actions:

- withdraw or modify (or publicly propose to withdraw or modify) the recommendation of the Q32 board of directors in a manner adverse to Homology;
- resolve, or have any committee of the Q32 board of directors resolve, to withdraw or modify the recommendation of the Q32 board of directors in a manner adverse to Homology; or
- adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal.

Meeting of Homology's Stockholders and Written Consent of Q32's Stockholders

Homology is obligated under the Merger Agreement to take all action necessary under applicable law to call, give notice of and hold a meeting of the holders of Homology common stock to consider and vote to approve the Merger Agreement and the transactions contemplated thereby, including the issuance of the shares of Homology common stock to the stockholders of Q32 pursuant to the terms of the Merger Agreement and the amendments to the Restated Certificate of Incorporation of Homology described in the section titled "*The Merger Agreement-Amendment of the Restated Certificate of Incorporation of Homology*", or the Required Homology Stockholder Vote. The Homology stockholder meeting shall be held as promptly as practicable after the Registration Statement is declared effective under the Securities Act, and in any event no later than 45 days after the effective date of the Registration Statement. Homology shall take reasonable measures to ensure that all proxies solicited in connection with the Homology stockholder meeting are solicited in compliance with all applicable law.

Notwithstanding anything to the contrary contained in the Merger Agreement, if on the date of the Homology stockholder meeting, or a date preceding the date on which the Homology stockholder meeting is scheduled, Homology reasonably believes that (i) it will not receive proxies sufficient to obtain the requisite Homology stockholder vote, whether or not a quorum would be present or (ii) it will not have sufficient shares of Homology common stock represented (whether in person or by proxy) to constitute a quorum necessary to

conduct the business of the Homology stockholder meeting, Homology may postpone or adjourn, or make one or more successive postponements or adjournments of, the Homology stockholder meeting as long as the date of the Homology stockholder meeting is not postponed or adjourned more than an aggregate of 30 calendar days in connection with any postponements or adjournments.

Promptly after the Registration Statement has been declared effective under the Securities Act, and in any event no later than two business days thereafter, Q32 shall prepare, with the cooperation of Homology, and cause to be mailed to the stockholders of Q32 an information statement, which shall include a copy of the Proxy Statement, and the Q32 stockholder written consent, in order to solicit the approval of Q32's stockholders, including but not limited to Q32's stockholders sufficient for the requisite Q32 stockholder vote in lieu of a meeting pursuant to Section 228 of Delaware law, for purposes of (i) adopting and approving the Merger Agreement and the transaction contemplated thereby, (ii) acknowledging that the approval given thereby is irrevocable, or (i) and (ii) together, the Required Q32 Stockholder Vote. Q32 shall use its reasonable best efforts to cause Q32 stockholders sufficient for the requisite Q32 stockholder vote to execute and deliver to Q32 the Q32 stockholder written consent promptly following delivery thereof, and in any event no later than fifteen days after the Registration Statement has been declared effective.

Regulatory Approvals

Each of the parties will use commercially reasonable efforts to file or otherwise submit, as soon as practicable after the date of the Merger Agreement, all applications, notices, reports and other documents reasonably required to be filed by such party with or otherwise submitted by such party to any governmental authority with respect to the transactions contemplated by the Merger Agreement, and to submit promptly any additional information requested by any such governmental authority. Homology and Q32 will respond as promptly as is practicable to respond in compliance with: (i) any inquiries or requests received from the Federal Trade Commission or the Department of Justice for additional information or documentation and (ii) any inquiries or requests received from any state attorney general, foreign antitrust or competition authority or other governmental authority in connection with antitrust or competition matters.

Indemnification and Insurance for Directors and Officers

Under the Merger Agreement, from the Effective Time through the sixth anniversary of the date on which the Effective Time occurs (or such period in which a director or officer of Homology or Q32, respectively, is asserting a claim for indemnification or other protections pursuant to the Merger Agreement to the extent arising prior to the end of such six-year period), each of Homology and the combined company agreed to indemnify and hold harmless each person who is now, or has been at any time prior to the date of the Merger Agreement, or who becomes prior to the Effective Time, a director or officer of Homology or Q32, respectively, against all claims, losses, liabilities, settlements, damages, judgments, fines and penalties and reasonable fees, costs and expenses, including attorneys' fees and disbursements, incurred in connection with any claim, action, suit, proceeding or investigation, whether civil, criminal, administrative or investigative, formal or informal, arising out of or pertaining to the fact that the indemnified officer or director is or was a director or officer of Homology or of Q32, whether asserted or claimed prior to, at or after the Effective Time (including in connection with the Merger Agreement or the transactions contemplated thereby).

The Merger Agreement also provides that the provisions of the certificate of incorporation and bylaws of Homology with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of Homology that are presently set forth in the certificate of incorporation and bylaws of Homology will not be amended modified or repealed for a period of six years from the Effective Time in a manner that would adversely affect the rights thereunder of individuals who, at or prior to the Effective Time, were officers or directors of Homology, unless such modification is required by applicable law. The certificate of incorporation and bylaws of the combined company will contain, and Homology will cause the certificate of incorporation and bylaws of the combined company to so contain, provisions no less favorable with respect to

indemnification, advancement of fees, costs and expenses and exculpation of future, present and former directors and officers as those presently set forth in the certificates of incorporation and bylaws of each of Homology and Q32.

From and after the Effective Time, Homology will maintain director' and officers' liability insurance policies, with an effective date as of the closing date of the Merger, on commercially available terms and conditions and with coverage limits customary for U.S. public companies similarly situated to Homology. In addition, Homology will secure and purchase a six year "tail policy" on Homology's existing directors' and officers' liability insurance policy with an effective date as of the date of the closing of the Merger.

Section 16 Matters

Prior to the Effective Time, Homology will take all such steps as may be required to cause any acquisitions of Homology common stock and any options to purchase Homology common stock in connection with the Contemplated Transactions, by each individual who is reasonably expected to become subject to the reporting requirements of Section 16(a) of the Exchange Act with respect to Homology, to be exempt under Rule 16b-3 promulgated under the Exchange Act.

2024 Plan and 2024 ESPP

Prior to the Effective Time, the Homology board of directors will adopt the 2024 Plan and 2024 ESPP, each in form and substance as agreed to by Homology and Q32, reserving for issuance a number of shares of Homology common stock to be mutually agreed upon by Q32 and Homology (described in the sections titled "*Interests of Q32 Directors and Executive Officers in the Merger—2024 Stock Incentive Plan*" and "*Interests of Q32 Bio Directors and Executive Officers in the Merger—2024 Employee Stock Purchase Plan*"). Approval of the 2024 Plan and the 2024 ESPP by Homology's stockholders is not a condition to closing.

Homology 401(k) Plan

Unless Q32 requests otherwise, Homology will, effective as of at least one day prior to the closing date of the Merger but subject to the closing of the Merger, terminate any Homology employee plan that is intended to meet the requirements of Section 401(k) of the Code and no further contributions will be made to such plan and all participant account balances will become 100% vested.

Additional Agreements

Each of Homology and Q32 has agreed to use commercially reasonable efforts to consummate the Merger and the other transactions contemplated by the Merger Agreement. In connection therewith, each party has agreed to:

- make all filings and other submissions (if any) and give all notices (if any) required to be made and given by such party in connection with the transactions contemplated by the Merger Agreement;
- use commercially reasonable efforts to obtain each consent (if any) reasonably required to be obtained (pursuant to any applicable law or contract, or otherwise) in connection with the transactions contemplated by the Merger Agreement or for such contract to remain in full force and effect;
- use commercially reasonable efforts to lift any injunction prohibiting, or any other legal bar to, the transactions contemplated by the Merger Agreement; and
- use commercially reasonable efforts to satisfy the conditions precedent to the consummation of the Merger Agreement.

Pursuant to the Merger Agreement, Homology and Q32 have further agreed, among other things, that:

- Homology will use commercially reasonable efforts to (a) maintain a listing on Nasdaq until the Effective Time and, to the extent required by the rules and regulations of Nasdaq, obtain approval of the listing of the combined company on Nasdaq, (b) to the extent required by the rules and regulations of Nasdaq, prepare and submit to Nasdaq a notification form for the listing of the shares of Homology common stock to be issued in connection with the transactions contemplated by the Merger Agreement and to cause such shares to be approved for listing; (c) prepare and timely submit to Nasdaq a notification form of the Reverse Stock Split and to submit a copy of the amendment to Homology's certificate of incorporation to effect the Reverse Stock Split and other amendments contemplated by the Merger Agreement certified by the Secretary of State of the State of Delaware, to Nasdaq on or before the closing of the Merger; and (d) to the extent required by Nasdaq Marketplace Rule 5110, assist Q32 in preparing and filing an initial listing application for the Homology common stock on Nasdaq.
- Each party will keep the other party reasonably informed regarding any stockholder litigation against Homology or any of its directors relating to Merger Agreement or the transactions contemplated by the Merger Agreement. Prior to the closing of the Merger, Homology will have the right to control the defense and settlement of any such stockholder litigation, but will reasonably consult with Q32 and consider any advice from Q32 and its representatives. Homology will promptly advise Q32 of the initiation of, and will keep Q32 reasonably apprised of any material developments in connection with, any such stockholder litigation.
- Each party intends that the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Code. Each party will for all tax purposes report consistently with the foregoing, and no party will take any position on any tax return that is inconsistent with the foregoing, unless otherwise required by a governmental authority as a result of a "determination" within the meaning of Section 1313(a) of the Code. In addition, each party will use commercially reasonable efforts to promptly notify each other if such party becomes aware of any non-public fact or circumstance that would reasonably be likely to prevent or impede the Merger from qualifying for the foregoing tax treatment.

Conditions to the Completion of the Merger

Each party's obligation to effect the Merger and otherwise consummate the transactions contemplated under the Merger Agreement are subject to the satisfaction or, to the extent permitted by applicable law, the written waiver by each of the parties, at or prior to the completion of the Merger, of each of the following conditions:

- No temporary restraining order, preliminary or permanent injunction or other order preventing the consummation of the transactions contemplated by the Merger Agreement shall have been issued by any court of competent jurisdiction or other governmental authority of competent jurisdiction and remain in effect and there shall not be any law which has the effect of making the consummation of the transactions contemplated by the Merger Agreement illegal.
- The Required Homology Stockholder Vote and the Required Q32 Stockholder Vote shall have been obtained.
- The approval of the listing of additional shares of Homology common stock on Nasdaq shall have been obtained and the shares of Homology common stock to be issued in the Merger pursuant to the Merger Agreement shall have been approved for listing (subject to official notice of issuance) on Nasdaq.
- The lock-up agreements will continue to be in full force and effect as of immediately following the Effective Time.
- The Registration Statement shall have become effective in accordance with the provisions of the Securities Act, and shall not be subject to any stop order or proceeding seeking a stop order with respect to the Registration Statement that has not been withdrawn.

- Q32 shall have effected the conversion of Q32 preferred stock to Q32 common stock immediately prior to the Effective Time in accordance with, and pursuant to the terms and conditions of, the organizational documents of Q32.
- The representations and warranties of each of Homology and Q32 with respect to due organization, subsidiaries, organizational documents, authority, the binding nature of the Merger Agreement, required vote and no financial advisors shall have been true and correct in all material respects as of the date of the Merger Agreement and shall be true and correct on and as of the date of the completion of the Merger with the same force and effect as if made on and as of such date (except to the extent such representations and warranties are specifically made as of a particular date, in which case such representations and warranties shall be true and correct as of such date).
- The representations and warranties of each of Homology and Q32 with respect to capitalization shall have been true and correct in all respects as of the date of the Merger Agreement and shall be true and correct on and as of the date of the completion of the Merger with the same force and effect as if made on and as of such date, except, in each case, (x) for such inaccuracies which are de minimis, individually or in the aggregate or (y) for those representations and warranties which address matters only as of a particular date (which representations and warranties shall have been true and correct, subject to the qualifications as set forth in the preceding clause (x), as of such particular date).
- The remaining representations and warranties of each of Homology and Q32 shall have been true and correct as of the date of the Merger Agreement and shall be true and correct in all respects on and as of the date of the completion of the Merger with the same force and effect as if made on such date except (i) in each case, or in the aggregate, where the failure to be so true and correct would not reasonably be expected to have a material adverse effect (without giving effect to any references therein to any Homology material adverse effect or Q32 material adverse effect, as applicable, or other materiality qualifications), (ii) where the failure to be true and correct as of the date of the completion of the Merger is the result of a Legacy Asset Disposition or abandonment of or failure to file, prosecute or maintain certain intellectual property rights of Homology (except for liability with respect to such intellectual property rights that remains with the surviving corporation), or (iii) for those representations and warranties which address matters only as of a particular date (which representations shall have been true and correct, subject to the qualifications as set forth in the preceding clause (i) and (ii), as of such particular date).
- Each party shall have performed and complied in all material respects with all covenants and agreements required to be performed or complied with by it under the Merger Agreement at or prior to the date of the completion of the Merger.
- A material adverse effect with respect to either party shall not have occurred since the date of the Merger Agreement and be continuing.
- Each party shall have delivered to the other party customary closing certificates signed by an executive officer of such party.
- The subscription agreement relating to the Pre-Closing Financing will continue to be full force and effect and cash proceeds of not less than $42.0 million have been received by Q32, or will be received by Q32 substantially simultaneously with the completion of the Merger, in connection with the consummation of the transactions contemplated by the subscription agreement.

Termination and Termination Fees

Termination of the Merger Agreement

The Merger Agreement may be terminated at any time before the Effective Time, whether before or after the required stockholder approvals to complete the Merger have been obtained, as set forth below:

(a) by mutual written consent of Homology and Q32;

(b) by either Homology or Q32, if the Merger has not been consummated by May 16, 2024 (subject to possible extension as provided in the Merger Agreement); *provided*, *however*, that this right to terminate the Merger Agreement will not be available to any party whose action or failure to act has been a principal cause of the failure of the Merger to occur on or before May 16, 2024 and such action or failure to act constitutes a breach of the Merger Agreement; and *provided*, *further*, that such date will be extended by 90 days upon request of either party in the event that the SEC has not declared effective the registration statement on Form S-4, of which this proxy statement/prospectus is a part, by the date which is 25 business prior to May 16, 2024;

(c) by either Homology or Q32 if a court of competent jurisdiction or governmental authority has issued a final and non-appealable order or taken any other action that permanently restrains, enjoins or otherwise prohibits the Merger or any of the other transactions contemplated by the Merger Agreement;

(d) by Homology, if the required Q32 Stockholder Vote has not been obtained within fifteen days of the registration statement on Form S-4, of which this proxy statement/prospectus is a part, becoming effective; *provided* that this right to terminate the Merger Agreement will not be available to Homology once Q32 obtains such stockholder consent;

(e) by either Homology or Q32, if the Homology stockholder meeting has been held and completed and Homology stockholders have taken a final vote on the proposals set forth herein to be considered at the Homology stockholder meeting, and the Required Homology Stockholder Vote has not been obtained;

(f) by Q32, at any time prior to the approval by Homology stockholders by the Required Homology Stockholder Vote, if any of the following circumstances shall occur:

(i) Homology fails to include in this proxy statement/prospectus the Homology board of directors' recommendation that Homology stockholders approve the Merger proposal set forth herein to be considered at the Homology stockholder meeting;

(ii) the Homology board of directors, or any committee thereof, makes a recommendation change adverse to Q32 or approves, endorses or recommends any Acquisition Proposal (other than with Q32); or

(iii) Homology enters into any letter of intent or similar document or any contract relating to any Acquisition Proposal, other than a confidentiality agreement permitted pursuant to the Merger Agreement;

(g) by Homology, at any time prior to the adoption of the Merger Agreement and the approval of the transactions contemplated therein by the Required Q32 Stockholder Vote, if any of the following circumstances shall occur:

(i) the Q32 board of directors approves, endorses or recommends any Acquisition Proposal (other than with Homology); or

(ii) Q32 enters into any letter of intent or similar document or any contract relating to any Acquisition Proposal, other than a confidentiality agreement permitted pursuant to the Merger Agreement.

(iii) Homology enters into any letter of intent or similar document or any contract relating to any Acquisition Proposal, other than a confidentiality agreement permitted pursuant to the Merger Agreement;

(h) by Q32, if Homology or Merger Sub has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of Homology or Merger Sub has become inaccurate, in either case, such that the conditions to the closing would not be satisfied as of time of such breach or inaccuracy; *provided* that Q32 is not then in material breach of any representation, warranty, covenant or agreement under the Merger Agreement; *provided*, *further*, that if such breach or inaccuracy is curable by Homology or Merger Sub, then the Merger Agreement will not terminate pursuant to this paragraph as a result of a particular breach or inaccuracy until the expiration of a 30-day period commencing upon delivery of written notice, from Q32 to Homology or Merger Sub, of such breach or inaccuracy and Q32's intention to

terminate pursuant to this paragraph (it being understood that the Merger Agreement will not terminate pursuant to this paragraph as a result of such particular breach or inaccuracy if such breach by Homology or Merger Sub is cured prior to such termination becoming effective); or

(i) by Homology, if Q32 has breached any of its representations, warranties, covenants or agreements contained in the Merger Agreement or if any representation or warranty of Q32 has become inaccurate, in either case, such that the conditions to the closing would not be satisfied as of time of such breach or inaccuracy; *provided* that Homology is not then in material breach of any representation, warranty, covenant or agreement under the Merger Agreement; *provided*, *further*, if such breach or inaccuracy is curable by Q32, then the Merger Agreement will not terminate pursuant to this paragraph as a result of a particular breach or inaccuracy until the earlier of the expiration of a 30-day period after delivery of written notice, from Homology to Q32, of such breach or inaccuracy and Homology's intention to terminate pursuant to this paragraph (it being understood that the Merger Agreement will not terminate pursuant to this paragraph as a result of such particular breach or inaccuracy if such breach by Q32 is cured prior to such termination becoming effective).

The party desiring to terminate the Merger Agreement will give the other party written notice of such termination, specifying the provisions thereof pursuant to which such termination is made and the basis for termination described in reasonable detail.

Termination Fees Payable by Homology

Homology must pay Q32 a termination fee of $2.4 million if (i) the Merger Agreement is terminated by (A) Homology or Q32 pursuant to clause (e) above, (B) at any time after the date of the Merger Agreement and prior to the Homology stockholder meeting an Acquisition Proposal with respect to Homology will have been publicly announced, disclosed or otherwise communicated to the Homology board of directors (and will not have been withdrawn), and (C) within 12 months after the date of such termination, Homology enters into a definitive agreement with respect to a subsequent transaction or consummates a subsequent transaction, or (ii) the Merger Agreement is terminated by Q32 pursuant to clause (f) above.

Termination Fees Payable by Q32

Q32 must pay Homology a termination fee of $5.85 million if the Merger Agreement is terminated pursuant to clause (d) or (g) above.

Amendment and Waiver

The Merger Agreement may not be amended except by an instrument in writing signed on behalf of each of Q32, Merger Sub and Homology. Such amendment requires the approval of the respective boards of directors of Q32, Merger Sub and Homology at any time, except that after the Merger Agreement has been adopted and approved by the Q32 stockholders or Homology stockholders, no amendment which by law requires further approval of the Q32 stockholders or Homology stockholders, as the case may be, may be made without such further approval.

Any provision of the Merger Agreement may be waived by any party solely on that party's behalf, without the consent of any other party. The waiver must be expressly set forth in a written instrument duly executed and delivered on behalf of such party, which will only be valid in the specific instance in which it is given. No failure or delay on the part of any party with respect to the exercise of any power, right, privilege or remedy under the Merger Agreement will operate as a waiver of that said power, right, privilege or remedy. Furthermore, no single or partial exercise of any such power, right, privilege or remedy will preclude any other or further exercise thereof or of any other power, right, privilege or remedy.

Homology and Q32 have determined that, in light of the Reverse Stock Split, Homology will not need to authorize additional shares of Homology common stock. Accordingly, the parties have agreed that the

authorization of additional shares of Homology common stock will not be required under the terms and conditions of the Merger Agreement and will not be a condition to closing under the Merger Agreement.

Fees and Expenses

The Merger Agreement provides all fees and expenses incurred in connection with the Merger Agreement and the transactions contemplated thereby shall be paid by the party incurring such expenses, whether or not the Merger is consummated, except as described above in the section titled "*The Merger Agreement-Termination and Termination Fees*," and except that Homology and Q32 will pay the costs and expenses incurred in relation to the filings by the parties under any antitrust law applicable to the Merger Agreement and the transactions contemplated by the Merger Agreement, and Homology and Q32 will share equally in all fees and expenses incurred in relation to the printing and filing with the SEC of the registration statement on Form S-4 (including any financial statements and exhibits) and any related amendments or supplements.

AGREEMENTS RELATED TO THE MERGER

Support Agreements

In order to induce Homology to enter into the Merger Agreement, certain Q32 stockholders are party to support agreements with Homology pursuant to which, among other things, each such stockholder has agreed, solely in his, her or its capacity as a Q32 stockholder, to vote all of his, her or its shares of Q32 capital stock in favor of (i) the adoption of the Merger Agreement and approval of the Merger, (ii) the approval of the related transactions contemplated by the Merger Agreement, (iii) to the extent applicable, the conversion of each share of Q32 preferred stock into shares of Q32 common stock immediately prior to and contingent upon the closing and (iv) the approval of certain additional proposals in connection with the Merger that the Q32 board of directors may recommend, including, if applicable, to approve any proposal to adjourn or postpone the meeting to a later date, if there are not sufficient votes for the adoption of the Merger Agreement on the date on which a meeting of such stockholders is held. These Q32 stockholders also agreed to vote against (i) any action or agreement that would result in a breach of any representation, warranty, covenant or obligation of Q32 in the Merger Agreement, (ii) any competing Acquisition Proposal with respect to Q32 and (iii) any agreement, transaction or other matter that is intended to, or would reasonably be expected to, impede, interfere with, delay, postpone, discourage or materially and adversely affect the Merger or any of the other transactions contemplated by the Merger Agreement, subject to certain specified exceptions.

These Q32 stockholders have also granted Q32 an irrevocable proxy to vote their respective shares of Q32 common stock or Q32 preferred stock in accordance with the support agreements. The Q32 stockholders may vote their shares of Q32 common stock or Q32 preferred stock on all other matters not referred to in such proxy.

As of December 31, 2023, the Q32 stockholders that are party to support agreements with Homology owned an aggregate of 1,693,680 shares of Q32 common stock and 84,305,730 shares of Q32 preferred stock, representing approximately 73.9% of the outstanding shares of Q32 common stock and Q32 preferred stock. These stockholders include executive officers and directors of Q32, as well as certain other stockholders owning a significant portion of the outstanding shares of Q32 capital stock. Following the effectiveness of the registration statement on Form S-4 of which this proxy statement/prospectus is a part and pursuant to the Merger Agreement, Q32 stockholders holding a sufficient number of shares of Q32 capital stock to adopt the Merger Agreement and approve the Merger and related transactions will execute written consents providing for such adoption and approval. Therefore, holders of a sufficient number of shares of Q32 capital stock required to adopt the Merger Agreement and approve the Merger and related transactions that are contractually obligated to adopt the Merger Agreement are expected to adopt the Merger Agreement via written consent.

Under these support agreements, subject to certain exceptions, such stockholders have also agreed not to sell or transfer their shares of Q32 capital stock and securities convertible into shares of Q32 capital stock held by them, or any voting rights with respect thereto, until the earlier of the termination of the Merger Agreement and the completion of the Merger, subject to certain exceptions. To the extent that any such sale or transfer is permitted pursuant to the exceptions included in the support agreement, each person to which any shares of Q32 capital stock or securities convertible into shares of Q32 capital stock are so sold or transferred must agree in writing to be bound by the terms and provisions of the support agreement.

In addition, in order to induce Q32 to enter into the Merger Agreement, certain Homology stockholders have entered into support agreements with Q32 pursuant to which, among other things, each such stockholder has agreed, solely in his, her or its capacity as a Homology stockholder, to vote all of his, her or its shares of Homology common stock in favor of (i) the approval of the Merger Agreement, (ii) the transactions contemplated thereby, including the issuance of Homology common stock to Q32 stockholders, (iii) an amendment to the restated certificate of incorporation of Homology to effect the proposed Reverse Stock Split, (iv) any proposal to adjourn or postpone the meeting to a later date, if there are not sufficient votes for the approval of the Merger Agreement and the transactions contemplated therein and (v) the approval of certain

additional proposals in connection with the Merger that the Homology board of directors may recommend. These Homology stockholders also agreed to vote against (i) any action or agreement that would result in a breach of any representation, warranty, covenant or obligation of Homology in the Merger Agreement, (ii) any competing Acquisition Proposal with respect to Homology and (iii) any action, proposal, agreement, transaction or proposed transaction that would reasonably be expected to materially impede, interfere with, delay, postpone, discourage or adversely affect the Merger or any of the other transactions contemplated by the Merger Agreement, subject to certain specified exceptions.

These Homology Stockholders have also granted Q32 an irrevocable proxy to vote their respective shares of Homology common stock in accordance with the support agreements. Homology stockholders may vote their shares of Homology common stock on all other matters not referred to in such proxy.

As of February 5, 2024, the Homology stockholders that are party to a support agreement owned approximately 18.3% of the outstanding shares of Homology common stock. These stockholders include certain executive officers and directors of Homology.

Under these support agreements, subject to certain exceptions, such stockholders have also agreed not to sell or transfer their shares of Homology common stock and securities convertible into shares of Homology common stock held by them until the earlier of the termination of the Merger Agreement and the completion of the Merger, subject to certain exceptions. To the extent that any such sale or transfer is permitted pursuant to the exceptions included in the support agreements, each person to which any shares of Homology common stock or securities convertible into shares of Homology common stock are so sold or transferred must agree in writing to be bound by the terms and provisions of the support agreement.

The foregoing description of the support agreements does not purport to be complete and is qualified in its entirety by the full text of the forms of support agreements, which are attached hereto as *Annex B* and *Annex C*.

Lock-Up Agreements

Certain of Q32's executive officers, directors and stockholders have entered into lock-up agreements, pursuant to which such parties have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, sell any option to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any shares of Homology's common stock, including, as applicable, shares received in the Merger and shares issuable upon exercise of options, warrants or convertible securities, until 180 days after the Effective Time.

The Q32 stockholders who have executed lock-up agreements as of December 31, 2023, owned in the aggregate, approximately 73.9% of the outstanding shares of Q32 common stock and Q32 preferred stock.

Certain of Homology's directors have entered into lock-up agreements, pursuant to which such stockholders have agreed not to, except in limited circumstances, offer, pledge, sell, contract to sell, sell any option to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any Homology securities or shares of Homology common stock, including, as applicable, shares issuable upon exercise of certain options, warrants or convertible securities, until 180 days after the Effective Time.

Homology stockholders who have executed lock-up agreements as of February 5, 2024 owned, in the aggregate, less than 1% of the shares of outstanding Homology common stock.

The foregoing description of the lock-up agreements does not purport to be complete and is qualified in its entirety by the full text of the form of lock-up agreement, which is attached hereto as *Annex E* and *Annex F*.

The Q32 Pre-Closing Financing

On November 16, 2023, concurrently with the execution and delivery of the Merger Agreement, Q32 entered into a subscription agreement, or the Subscription Agreement, with certain accredited investors named therein, or the investors, pursuant to which the investors agreed to purchase shares of Q32 common stock for aggregate gross proceeds of approximately $42.0 million to Q32, which private placement is referred to herein as the Pre-Closing Financing. The closing of the Pre-Closing Financing is conditioned upon the satisfaction or waiver of the conditions to the Merger as well as certain other conditions. Immediately after the Merger, the shares of Q32 common stock issued in the Pre-Closing Financing are expected to represent approximately 13.2% of the outstanding shares of the combined company. Q32 and the investors participating in the Pre-Closing Financing have also agreed to enter into the registration rights agreement at the closing of the Pre-Closing Financing, pursuant to which, among other things, the combined company will agree to provide for the registration and resale of certain shares of Homology common stock that are held by the investors participating in the Pre-Closing Financing from time to time.

Contingent Value Rights Agreement

CVR Agreement

As provided in the Merger Agreement and discussed under the section titled "*The Merger Agreement —Contingent Value Rights*" in this proxy statement/prospectus, Homology will declare a distribution to its common stockholders of record (determined as of the close of business on the last business day prior to the day on which the Effective Time occurs) the right to receive one CVR for each outstanding share of Homology common stock held by such stockholder as of such date, each representing the non-transferable contractual right to receive certain contingent payments from Homology upon the occurrence of certain events.

The CVRs will be governed by the terms of the CVR Agreement, which will be entered into at or prior to the Effective Time by Homology and Equiniti Trust Company, LLC, the Rights Agent.

Characteristics of the CVRs; Restrictions on Transfer

The CVRs may not be transferred, pledged, hypothecated, encumbered, assigned or otherwise disposed of (whether by sale, merger, consolidation, liquidation, dissolution, dividend, distribution or otherwise), in whole or in part, other than pursuant to any of the following permitted transfers: (i) upon death, by will or intestacy; (ii) by instrument to an inter vivos or testamentary trust in which the CVRs are to be passed to beneficiaries upon the death of the trustee; (iii) pursuant to a court order of a court of competent jurisdiction (such as in connection with divorce, bankruptcy or liquidation); (iv) by operation of law (including a consolidation or merger) or without consideration in connection with the dissolution, liquidation or termination of any corporation, limited liability company, partnership or other entity; (v) in the case of CVRs payable to a nominee, from a nominee to a beneficial owner (and, if applicable, through an intermediary) or from such nominee to another nominee for the same beneficial owner, in each case as permitted by The Depository Trust Company; (vi) to Homology or its subsidiaries; or (vii) upon abandonment of a CVR by the holder thereof in accordance with the CVR Agreement.

The CVRs will not be evidenced by a certificate or any other instrument. The CVRs will not have any voting or dividend rights, and interest will not accrue on any amounts payable in respect of the CVRs. The CVRs will not represent any equity or ownership interest in Homology, any constituent company to the Merger, or any of its subsidiaries. The Rights Agent will maintain an up-to-date register, or the CVR Register, for the purposes of (i) identifying the holders of CVRs, (ii) determining holders' entitlement to CVRs, and (iii) registering the CVRs and permitted transfers thereof. Homology's obligation to make the CVR payment, if any becomes due, is neither secured nor guaranteed by Homology or any of its subsidiaries.

CVR Payments

Pursuant to the CVR Agreement, each CVR holder is entitled to certain contingent cash payments, which are payable by Homology to the Rights Agent for subsequent distribution to the CVR holders (such payments,

the CVR Payments), of the CVR Proceeds, which will equal the net amount (calculated in accordance with GAAP consistently applied) of:

- The cash proceeds actually received by Homology or its subsidiaries, collectively, the Gross Proceeds, as a result of the sale, transfer, license, assignment or other divestiture, disposition or commercialization of the following assets after the Closing and prior to the 18-month anniversary of the Closing (or prior to the 24-month anniversary of the Closing in the case of the of the Oxford Assets) (collectively, the "Legacy Assets"):
  - in respect of any equity interests held directly or indirectly by Homology in Oxford Biomedica (US) LLC or its affiliates, or OXB (US) LLC, pursuant to that certain Equity Securities Purchase Agreement, dated as of January 28, 2022, by and between Homology and OXB (US) LLC, in which Homology currently owns twenty percent (20%) of the fully diluted equity interests in OXB (US) LLC and Homology is entitled to exercise a put option to sell or transfer Homology's equity interests in OXB (US) LLC set forth therein on March 10, 2025 (such interests, the "Oxford Assets"); and
  - in respect of HMI-103 (Adult/Pediatric PKU), HMI-204 (MLD) and Homology's Capsids and AAVHSC Platform, including the Oxford Assets,
- *less* all applicable reasonably documented permitted deductions, collectively, the Permitted Deductions, as of the date of payment, which include:
  - any applicable and non-recoverable value added, sales or similar taxes imposed upon the Gross Proceeds and payable in cash by Homology or any of its subsidiaries, certain income taxes required to be paid in cash as a result of the receipt of the Gross Proceeds;
  - any documented out-of-pocket costs and expenses incurred by Homology or its subsidiaries in respect of its performance of the CVR Agreement, or in respect of its performance of any agreement, in connection with the Legacy Assets;
  - any documented out-of-pocket costs and expenses incurred or accrued by Homology or its subsidiaries in respect of the negotiation, entry into or the closing of any sale, transfer, license, assignment or other divestiture, disposition or commercialization of the Legacy Assets during the Disposition Period, or a Legacy Asset Disposition;
  - any losses incurred or reasonably expected to be incurred by Homology or its subsidiaries arising out of any third-party claims relating to or in connection with any Legacy Assets or any Legacy Asset Disposition, including the maximum amount that could be payable under any obligations of Homology or any of its subsidiaries (including contingent or indemnification obligations in connection with any agreement relating to any Legacy Asset Disposition), provided that any amounts deduced in respect of such contingent or indemnification obligations that have not been used to pay such contingent or indemnification obligations upon the lapse in survival of such obligations (or resolution of any dispute related to such obligations) prior to the tenth anniversary of the Closing Date will be paid over to the Rights Agent; and
  - any liabilities borne by Homology or its subsidiaries pursuant to contracts related to the Legacy Assets, including costs arising from the termination thereof.

If a Legacy Asset Disposition is consummated:

- on or prior to the closing date, then the proceeds from such disposition will be included in the calculation of Homology Net Cash pursuant to the Merger Agreement, which will have the effect of decreasing the number of shares issuable as consideration to the Q32 securityholders as of immediately prior to the Merger and proportionately increasing the relative ownership of the combined company by Homology securityholders as of immediately prior to the Merger; or

- following the closing date and for a period of ten years thereafter, then CVR holders will receive 100% of the CVR Proceeds, as a CVR Payment.

If any Gross Proceeds result from any Legacy Asset Disposition or from the ownership of equity securities in any subsidiary established by Homology during the Disposition Period, then CVR holders will receive 100% of the CVR Proceeds, as a CVR Payment, regardless of when such disposition is consummated.

Withholding

The CVR Agreement provides that Homology and the Rights Agent will be entitled to deduct and withhold, or cause to be deducted and withheld, from any payment payable to CVR holders pursuant to the CVR Agreement, such amounts as they are required to deduct and withhold with respect to the making of such payment under any provision of applicable law relating to taxes. To the extent that amounts are so deducted and withheld and paid over to the appropriate governmental authority, such deducted and withheld amounts will be treated for all purposes of the CVR Agreement as having been paid to the CVR holder in respect of which such deduction and withholding was made. Prior to making any such tax deductions or withholdings or causing any such tax deductions or withholdings to be made with respect to any CVR holder, the Rights Agent will, to the extent reasonably practicable, provide notice to the CVR holder of such potential tax deduction or withholding and a reasonable opportunity for the CVR holder to provide any necessary tax forms in order to avoid or reduce such withholding amounts. However, the time period for the payment of amounts payable to such CVR holder in accordance with the CVR Agreement will be extended by a period equal to any delay caused by the CVR holder in providing such forms, and in no event will such period be extended for more than ten business days (unless otherwise requested by the CVR holder for the purpose of delivering such forms and agreed to by the Rights Agent).

Payment Procedures

As promptly as practicable after CVR Proceeds are actually received, but no later than 45 days following the end of each fiscal quarter of Homology following the closing, Homology will (i) deliver to the Rights Agent an officer's certificate certifying for such fiscal quarter the aggregate amount of (a) the CVR Proceeds received by Homology or its subsidiaries during such fiscal quarter (or in the case of the first delivery of such certificate, all CVR Proceeds received through the end of such fiscal quarter), (b) the Permitted Deductions reflected in such CVR Proceeds and (c) the CVR payment payable to the CVR holders, if any, and (d) deliver to the Rights Agent, or as the Rights Agent directs, the CVR payments (if any) by wire transfer of immediately transferable funds to an account designated by the Rights Agent. Upon receipt of the wire transfer referred to in the foregoing sentence, the Rights Agent shall promptly (and in any event, within ten business days) pay, by check mailed, first-class postage prepaid, to the address of each CVR holder set forth in the CVR Register at such time or by other method of delivery as specified by the applicable holder in writing to the Rights Agent, an amount equal to the product determined by multiplying (i) the quotient determined by dividing (A) the applicable CVR Payment by (B) the total number of CVRs registered in the CVR Register at such time, by (ii) the number of CVRs registered to such holder in the CVR Register at such time. For the avoidance of doubt Homology shall have no further liability in respect of the relevant CVR Payment upon delivery of such CVR Payment to the Rights Agent and the satisfaction of each of Homology's obligations set forth hereunder.

CVR Special Committee

The CVR Agreement provides that the Homology board of directors shall have delegated to a special committee of Homology board of directors, or the CVR Special Committee, comprised of four (4) directors of the Homology board the sole responsibility, authority and discretion during the Disposition Period, with respect to (i) managing the Legacy Assets and (ii) negotiating any Legacy Asset Disposition during the Disposition Period, provided that the special committee may not cause Q32 to incur costs, expenses or obligations in excess of an amount specified in the CVR Agreement without the prior written consent of the Homology board of

directors. The CVR Special Committee shall also be empowered with the authority to authorize and direct any officer of Homology to negotiate, execute and deliver a definitive written agreement with respect to any Legacy Asset in the name and on behalf of Homology, provided that no such agreement shall be entered into without the approval of the Homology board of directors (such approval not to be unreasonably withheld, conditioned or delayed).

During the six months immediately following the Closing Date, Homology will, and will cause its subsidiaries to, use commercially reasonable efforts to effect dispositions of the then-existing Legacy Assets (i) pursuant to a letter of intent for such Legacy Asset Disposition that was executed prior to the Closing Date, and (ii) to a third party that has delivered a bona fide indication of interest to Homology subsequent to the Closing Date, provided that such obligation will not apply to the Oxford Assets. Homology will use commercially reasonable efforts to exercise the put option in the Oxford Assets contemplated by the Amended and Restated Limited Liability Company Agreement, dated March 10, 2022, by and among Oxford Biomedica (US) LLC (f/k/a Oxford Biomedica Solutions LLC and Roadrunner Solutions LLC), Homology and Oxford Biomedica (US) Inc., promptly after such put option becomes exercisable on March 10, 2025. The CVR Agreement states that "commercially reasonable efforts" means carrying out the obligation to dispose of Legacy Assets in a good faith and diligent manner, taking into account the fact that, following the Merger, the Legacy Assets are not part of Homology's go-forward business plan, taking into account all commercial and other relevant factors that Homology, exercising good faith, would normally take into account with a disposition of non-core assets. The requirement to use "commercially reasonable efforts" does not require Homology to (i) hire or retain any business development personnel or third-party financial advisors specifically for the purpose of the Legacy Asset Disposition, or (ii) initiate any bona fide sale process or other pro-active efforts to identify potential counterparties with respect to any Legacy Assets.

During the Disposition Period, if and to the extent the CVR Special Committee recommends, and the Homology board of directors authorizes and directs, the execution and delivery of a definitive written agreement with respect to any Legacy Asset, Homology will, and will cause its subsidiaries to, use commercially reasonable efforts to effectuate the disposition of such Legacy Asset(s) pursuant to such agreement in accordance with its terms. Unless approved by the CVR Special Committee, Homology will have no obligation to enter into any sale agreement or other agreement in connection with a Legacy Asset Disposition that imposes on Homology or requires Homology to retain or assume, any material obligations or liabilities, monetary or otherwise, following the consummation of such transaction.

Following the Disposition Period, Homology will be permitted to take any action in respect of the Legacy Assets in order to satisfy any liabilities of or arising from the Legacy Assets, including any wind-down or termination costs of the Legacy Assets.

Amendment and Termination of the CVR Agreement

Homology may, at any time and from time to time, unilaterally enter into one or more amendments to the CVR Agreement for any of the following purposes, without the consent of any of the holders of CVRs or the Rights Agent:

- to evidence the appointment of another person as a successor Rights Agent and the assumption by any successor Rights Agent of the covenants and obligations of the Rights Agent pursuant to the CVR Agreement;
- to evidence the succession of another person to Homology and the assumption of any such successor of the covenants of Homology pursuant to the CVR Agreement;
- to add to the covenants of Homology further covenants, restrictions, conditions or provisions for the protection and benefit of the holders of CVRs, provided that in each case, such provisions shall not adversely affect the interests of the holders of CVRs;

- to cure any ambiguity, to correct or supplement any provision in the CVR Agreement that may be defective or inconsistent with any other provision in the CVR Agreement, or to make any other provisions with respect to matters or questions arising under the CVR Agreement, provided that in each case, such provisions shall not adversely affect the interests of the holders of CVRs;
- as may be necessary or appropriate to ensure that CVRs are not subject to registration under the Securities Act or the Exchange Act and the rules and regulations made thereunder, or any applicable state securities or "blue sky" laws;
- as may be necessary or appropriate to ensure that Homology is not required to produce a prospectus or an admission document in order to comply with applicable law;
- to cancel CVRs (i) in the event that any holder of CVRs has abandoned its rights to such CVRs or (ii) following a transfer of such CVRs to Homology or its subsidiaries;
- as may be necessary or appropriate to ensure that Homology complies with applicable law; or
- to effect any other amendment to the CVR Agreement that would provide any additional rights or benefits to the holders of CVRs or that does not adversely affect the legal rights under the CVR Agreement of any such holder of CVRs.

With the consent of the holders of not less than a majority of the outstanding CVRs, Homology and the Rights Agent may enter into any amendment to the CVR Agreement, even if such amendment is adverse to the interests of the holders of the CVRs.

Homology will (or will cause the Rights Agent to) provide notice in general terms of the substance of any amendment to the CVR Agreement to the holders of the CVRs promptly after execution by Homology and the Rights Agent, if applicable, of such amendment.

The CVR Agreement will automatically terminate and of no force or effect, and the parties will have no liability thereunder, upon the tenth anniversary of the closing date.

Other Provisions of the CVR Agreement

The CVR Agreement also provides, among other things, for:

- the duties, responsibilities, rights and immunities of the Rights Agent, and procedures for the resignation or removal of the Rights Agent and appointment of a successor;
- a prohibition on Homology granting any lien, security, interest, pledge or similar interest in any Legacy Asset or any CVR Proceeds, unless approved by the CVR Special Committee; and
- the application of laws of the State of Delaware, exclusive jurisdiction over the parties by the Chancery Court of the State of Delaware, County of New Castle, or, if under applicable law exclusive jurisdiction is vested in the Federal courts, the United States District Court for the District of Delaware (and appellate courts thereof), and waiver of trial by jury.

The foregoing description of the CVR Agreement does not purport to be complete and is qualified in its entirety by the full text of the form of CVR Agreement, which is attached hereto as *Annex D*.

Material U.S. Federal Income Tax Consequences of the CVRs to Holders of Homology Common Stock

The following discussion is a summary of the material U.S. federal income tax consequences of the issuance of the CVRs and payments (if any) thereon to holders of Homology common stock, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local, or non-U.S. tax laws are not discussed. Furthermore, the following

discussion does not address any tax consequences of transactions effectuated before, after or at the same time as the distribution of the CVRs (except, to the limited extent discussed below, the Reverse Stock Split), whether or not they are in connection with the distribution of the CVRs. The CVRs generally may not be transferred or assigned except for certain permitted transfers; accordingly, this discussion assumes the CVRs are not transferable or assignable and does not address any consequences of transferring, assigning or otherwise disposing of the CVRs or any interest therein.

This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case, as in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a holder of Homology common stock. Homology has not sought and will not seek an opinion of counsel or any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the issuance of the CVRs and payments (if any) thereon.

This discussion is limited to holders of Homology common stock who hold their Homology common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to the particular circumstances of a holder of Homology common stock, including the impact of the Medicare contribution tax on net investment income and the alternative minimum tax. In addition, it does not address consequences relevant to holders of Homology common stock that are subject to particular rules, including, without limitation:

- U.S. expatriates or former citizens or long-term residents of the United States;
- U.S. Holders (as defined below) whose functional currency is not the U.S. dollar;
- persons holding Homology common stock as part of a hedge, straddle, or other risk-reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;
- brokers, dealers, or traders in securities;
- S corporations, partnerships, or other entities or arrangements treated as pass-through entities for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations, qualified retirement plans, individual retirement accounts or other tax deferred accounts, or governmental organizations;
- persons deemed to sell Homology common stock under the constructive sale provisions of the Code;
- persons who hold or receive Homology common stock pursuant to the exercise of any employee stock options or otherwise as compensation;
- controlled foreign corporations, passive foreign investment companies, and corporations that accumulate earnings to avoid U.S. federal income tax;
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by one or more qualified foreign pension funds; and
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the Homology common stock or the CVRs being taken into account in an applicable financial statement.

If a partnership, or an entity treated as a partnership for U.S. federal income tax purposes, holds Homology common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the

activities of the partnership, and certain determinations made at the partner level. Accordingly, partnerships holding Homology common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS NOT TAX ADVICE. HOLDERS OF HOMOLOGY COMMON STOCK SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE ISSUANCE OF THE CVRS, AND PAYMENTS (IF ANY) THEREON, ARISING UNDER OTHER U.S. FEDERAL TAX LAWS (INCLUDING ESTATE AND GIFT TAX LAWS), UNDER THE LAWS OF ANY STATE, LOCAL, OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

Material U.S. Federal Income Tax Consequences for U.S. Holders

For purposes of this discussion, a "U.S. Holder" is any beneficial owner of Homology common stock that, for U.S. federal income tax purposes, is or is treated as:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and all substantial decisions of which are subject to the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Tax Treatment of the CVRs and the Proposed Reverse Stock Split

Although the matter is not free from doubt, Homology intends to treat the issuance of the CVRs (together with any payments on the CVRs) and the proposed Reverse Stock Split as separate transactions for U.S. federal income tax purposes, and the following discussion (except as discussed below under "—*Alternative Treatment of the CVRs and the Reverse Stock Split as a Single Recapitalization*") assumes this treatment will be respected. The IRS could successfully challenge this position, however. Homology urges you to consult your tax advisor with respect to whether the issuance of the CVRs (and any payments on the CVRs), on the one hand, and the proposed Reverse Stock Split, on the other, constitute separate transactions.

Tax Treatment of the CVRs

There is no authority that directly addresses whether contingent value rights with characteristics similar to the CVRs should be treated for federal income tax purposes as a distribution of property with respect to Homology stock, an "open transaction," or in some other manner, and such questions are inherently factual in nature. Accordingly, holders are urged to consult with their tax advisors regarding this issue.

However, based on the specific characteristics of the CVRs, and unless otherwise required by a change in law after the date of the CVR Agreement, Homology intends to take the position that the fair market value of the CVRs cannot be reasonably ascertained on the date of the issuance of the CVRs, or the CVR Distribution Date, and, accordingly, the issuance of the CVRs constitutes an "open transaction." Accordingly, absent a change in law requiring otherwise, the combined company will not report the issuance of the CVRs as a current distribution of property with respect to its stock and will instead report each future cash payment (if any) on the CVRs as a distribution by the combined company for U.S. federal income tax purposes, with each such payment being reported as a dividend to the extent of the combined company's current and accumulated earnings and profits in the year in which such payment is made.

If Homology's intended reporting position is correct, a U.S. Holder would generally not recognize income in respect of the CVRs on the CVR Distribution Date and would take no tax basis in the CVRs. Any future cash payments would constitute a dividend to the extent of Homology's current and accumulated earnings and profits (as determined for U.S. federal income tax purposes) in the taxable year of such payment, then as a non-taxable return of capital to the extent of such holder's basis in its Homology common stock, and finally as capital gain from the sale or exchange of Homology common stock. Dividends received by individual U.S. Holders are generally eligible for reduced rates of taxation applicable to long-term capital gains, provided certain requirements are met.

However, the IRS could instead assert that the issuance of the CVRs should be treated as a "closed transaction." Under "closed transaction" treatment, a U.S. Holder would be treated as receiving a distribution equal to the fair market value (determined on the CVR Distribution Date) of the CVRs issued to such U.S. Holder on the CVR Distribution Date. The amount of this distribution generally would be treated first as a taxable dividend to the extent of the U.S. Holder's pro rata share of Homology's current or accumulated earnings and profits (as determined for U.S. federal income tax purposes), then as a non-taxable return of capital to the extent of the U.S. Holder's basis in its Homology common stock, and finally as capital gain from the sale or exchange of Homology common stock. A U.S. Holder's tax basis in the CVRs received would equal the fair market value of the CVRs on the CVR Distribution Date and the holding period of the CVRs received would begin on the day following the CVR Distribution Date. Although not free from doubt, a future cash payment under a CVR would likely be treated as a non-taxable return of a U.S. Holder's adjusted tax basis in the CVR to the extent thereof, although the timing of the recovery of a U.S. Holder's tax basis is unclear. A payment in excess of such amount may be treated as a payment with respect to a sale of a capital asset, ordinary income or a dividend. Additionally, it is possible that a portion of future cash payments would constitute imputed interest and taxed as such. A U.S. Holder might recognize loss, which might be a capital loss and could be a long-term capital loss, upon the expiration of the CVR to the extent cash payments ultimately received pursuant to such CVR were less than the U.S. Holder's adjusted tax basis in the CVRs, but whether and when such a loss would be recognized is unclear. The deductibility of capital losses is subject to limitations.

It is possible, although Homology believes unlikely, that the issuance of the CVRs could be treated as one or more "debt instruments" or as a distribution of equity.

U.S. Holders are urged to consult their tax advisors with respect to the proper characterization of the CVRs and the tax consequences thereof (including any future cash payments made under the CVRs).

Alternative Treatment of the CVRs and the Proposed Reverse Stock Split as a Single Recapitalization

Notwithstanding Homology's position that the CVRs and the proposed Reverse Stock Split are appropriately treated as separate transactions, it is possible that the IRS or a court could determine that the issuance of the CVRs (and/or any payments thereon) and the proposed Reverse Stock Split constitute a single "recapitalization" for U.S. federal income tax purposes with the CVRs constituting taxable "boot" received in such recapitalization exchange. In such case, the tax consequences of the CVRs and the proposed Reverse Stock Split would differ from those described above, including the timing and character of income, which would depend in part on many of the same considerations described above.

DUE TO THE SUBSTANTIAL UNCERTAINTY REGARDING THE TAX TREATMENT OF THE CVRS (AND ANY FUTURE CASH PAYMENTS UNDER THE CVRS) AND THE POSSIBLE INTEGRATION OF THE CVRS AND THE PROPOSED REVERSE STOCK SPLIT, U.S. HOLDERS ARE URGED TO CONSULT THEIR TAX ADVISORS CONCERNING THE RECOGNITION OF GAIN, INCOME AND/OR LOSS IN CONNECTION WITH THE CVRS AND THE PROPOSED REVERSE STOCK SPLIT AND THE APPLICABILITY OF INFORMATION REPORTING AND BACKUP WITHHOLDING.

Material U.S. Federal Income Tax Consequences for Non-U.S. Holders

The discussion below applies to beneficial owners of Homology common stock that are not U.S. Holders or entities treated as partnerships or other pass-through entities for U.S. federal income tax purposes (such beneficial owners, Non-U.S. Holders).

As discussed above under "*Material U.S. Federal Income Tax Consequences for U.S. Holders—Tax Treatment of the CVRs and the Proposed Reverse Stock Split*" and "*Material U.S. Federal Income Tax Consequences for U.S. Holders—Tax Treatment of the CVRs*," Homology intends to take the position that any future cash payments on the CVRs are distributions with respect to Homology common stock and that such distributions constitute dividends to the extent payable out of Homology's current and accumulated earnings and profits (as determined under U.S. federal income tax principles) in the taxable year of such future cash payment. Assuming such position is correct, amounts not treated as dividends for U.S. federal income tax purposes would constitute a return of capital and first be applied against and reduce a Non-U.S. Holder's adjusted tax basis in its common stock, but not below zero, and any excess would be treated as capital gain with respect to such Non-U.S. Holder's Homology common stock. However, this intended position is subject to substantial uncertainty, and, accordingly, Non-U.S. Holders are urged to consult their tax advisors with respect to the proper characterization of the CVRs and the tax consequences thereof (including any future cash payments made under the CVRs).

In light of Homology's intended reporting position, it is expected that Non-U.S. Holders would generally be subject to U.S. federal withholding tax at a rate of 30% on any future cash payments on the CVRs. Such withholding may be reduced or eliminated if the Non-U.S. Holder properly certifies qualification for a lower withholding rate under an applicable tax treaty or an exemption from withholding as a result of dividends on the Homology common stock being effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable). A Non-U.S. Holder that is a corporation also could be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable tax treaty) on income attributable to the CVRs.

DUE TO THE LEGAL AND FACTUAL UNCERTAINTY REGARDING THE TAX TREATMENT OF THE CVRS (AND ANY FUTURE CASH PAYMENTS UNDER THE CVRS), NON-U.S. HOLDERS ARE URGED TO CONSULT THEIR TAX ADVISORS CONCERNING THE RECOGNITION OF GAIN, INCOME AND/OR LOSS OR WITHHOLDING THAT MAY APPLY IN CONNECTION WITH THE CVRS. NON-U.S. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE APPLICABILITY OF INFORMATION REPORTING AND BACKUP WITHHOLDING AND/OR WITHHOLDING UNDER THE FOREIGN ACCOUNT TAX COMPLIANCE ACT WITH RESPECT TO THE CVRS AND ANY FUTURE CASH PAYMENTS UNDER THE CVRS, PARTICULARLY IN LIGHT OF THE UNCERTAINTY UNDER U.S. FEDERAL INCOME TAX LAW RELATING TO THE TAX TREATMENT OF THE CVRS.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES OF THE MERGER

Material U.S. Federal Income Tax Consequences for Holders of Q32 Common Stock

The following discussion is a summary of the material U.S. federal income tax consequences for certain holders of Q32 common stock that exchange, pursuant to the Merger, their Q32 common stock for Homology common stock. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local, or non-U.S. tax laws are not discussed. This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case, as in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change may be applied retroactively in a manner that could adversely affect a holder of Q32 common stock. Neither Homology nor Q32 has sought or will seek an opinion of counsel or any rulings from the IRS regarding the matters discussed below.

This discussion is limited to holders of Q32 common stock who hold their Q32 common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). In addition, this discussion does not address (a) all U.S. federal income tax consequences relevant to the particular circumstances of a stockholder of Q32 common stock, including the impact of the Medicare contribution tax on net investment income and the alternative minimum tax, (b) the tax consequences of transactions effectuated before, after or at the same time as the Merger, whether or not they are in connection with the Merger, including, without limitation, transactions in which shares of Q32 common stock are acquired or disposed of other than in exchange for shares of Homology common stock in the Merger; (c) the tax consequences to holders of Q32 convertible notes, or options or warrants issued by Q32 which are assumed in connection with the Merger; (c) the tax consequences of the ownership of shares of Homology common stock following the Merger; or (d) consequences relevant to holders of Q32 common stock that are subject to particular rules, including, without limitation:

- brokers, dealers, or traders;
- U.S. Holders (as defined below) whose functional currency is not the U.S. dollar;
- tax-exempt organizations, qualified retirement plans, individual retirement accounts or other tax deferred accounts, or governmental organizations;
- banks or other financial institutions, underwriters, insurance companies, real estate investment trusts or regulated investment companies;
- U.S. expatriates or former citizens or long-term residents of the United States;
- persons that own (directly, indirectly, or by attribution) 5% or more (by vote or value) of the stock of Q32 prior to the Merger or of Homology after the Merger (except as specifically addressed herein);
- S corporations, partnerships or other pass-through entities or arrangements for U.S. federal income tax purposes or beneficial owners of partnerships or other pass-through entities or arrangements;
- persons holding Q32 common stock as part of a straddle, hedging or conversion transaction, constructive sale, or other arrangement involving more than one position;
- persons subject to special tax accounting rules as a result of any item of income relating to Q32 common stock being recognized on an applicable financial statement;
- U.S. Holders that hold Q32 common stock in connection with a trade or business conducted outside the United States;
- persons that hold or received Q32 common stock pursuant to the exercise of any employee stock option or otherwise as compensation for services;
- U.S. Holders of Q32 common stock that hold such stock as Section 306 stock (within the meaning of Section 306(c) of the Code);
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by one or more qualified foreign pension funds; and

- controlled foreign corporations, passive foreign investment companies, and corporations that accumulate earnings to avoid U.S. federal income tax.

If a partnership, or an entity treated as a partnership for U.S. federal income tax purposes, holds Q32 common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership, and certain determinations made at the partner level. Accordingly, partnerships holding Q32 common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS NOT TAX ADVICE. HOLDERS OF Q32 STOCK SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE MERGER ARISING UNDER OTHER U.S. FEDERAL TAX LAWS (INCLUDING ESTATE AND GIFT TAX LAWS), UNDER THE LAWS OF ANY STATE, LOCAL, OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

It is intended that the Merger shall qualify as a "reorganization" within the meaning of Section 368(a) of the Code and the Treasury Regulations promulgated thereunder. The parties to the Merger Agreement have agreed to report the Merger as qualifying as a "reorganization" within the meaning of Section 368(a) of the Code for U.S. federal income tax purposes. In the opinion of Goodwin Procter, the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Code, and the material U.S. federal income tax consequences of the Merger to Q32 U.S. Holders are as described above under the heading "—*Material U.S. Federal Income Tax Consequences for U.S. Holders*." This opinion is based on facts and representations contained in representation letters provided to Goodwin Procter by Homology, Merger Sub and Q32 and certain assumptions, including that the Merger is completed in the manner set forth in the Merger Agreement and the registration statement on Form S-4 of which this proxy statement/prospectus forms a part. The accuracy of such facts, representations and assumptions could affect the conclusions set forth in such opinion.

The closing of the Merger is not conditioned upon the receipt of an opinion of counsel or a ruling from the IRS regarding the U.S. federal income tax treatment of the Merger, and no opinion of counsel or ruling from the IRS has been or will be requested regarding such treatment. Accordingly, there can be no assurance that the IRS will not challenge the qualification of the Merger as a "reorganization" within the meaning of Section 368(a) of the Code or that a court will not sustain such a challenge by the IRS. If the IRS were to challenge the "reorganization" status of the Merger successfully, the tax consequences would differ from those set forth in this proxy statement/prospectus. The remainder of this summary assumes that the Merger qualifies as a "reorganization" within the meaning of Section 368(a) of the Code.

Material U.S. Federal Income Tax Consequences for U.S. Holders

For purposes of this discussion, a "U.S. Holder" is any beneficial owner of Q32 common stock that, for U.S. federal income tax purposes, is or is treated as:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and all substantial decisions of which are subject to the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

The Merger

If the Merger qualifies as a "reorganization" within the meaning of Section 368(a) of the Code, a U.S. Holder that exchanges shares of Q32 common stock in the Merger for Homology common stock generally should not recognize any gain or loss on such exchange. In such case, the aggregate adjusted tax basis of the Homology common stock received in the Merger by a U.S. Holder should be equal to the adjusted tax basis of the Q32 common stock surrendered in the Merger in exchange therefor and the holding period of the Homology common stock should include the holding period during which the Q32 common stock surrendered in the Merger in exchange therefor.

If the Merger does not qualify as a "reorganization" within the meaning of Section 368(a) of the Code, a U.S. Holder that exchanges Q32 common stock in the Merger for Homology common stock generally would be required to recognize gain or loss equal to the difference, if any, between (i) the fair market value as of the Effective Time of the Homology common stock received by such U.S. Holder and (ii) such U.S. Holder's adjusted tax basis in the Q32 common stock exchanged therefor. Such gain or loss would be capital gain or loss and generally would be long-term capital gain or loss if the U.S. Holder's holding period for such shares of Q32 common stock exceeds one year. Net short-term capital gain generally is taxed at regular ordinary income tax rates. Long-term capital gain recognized by non-corporate U.S. Holders may be taxed at reduced rates. The deductibility of capital losses is subject to limitations. A U.S. Holder would have an aggregate tax basis in any Homology common stock received in the Merger that is equal to the fair market value of such Homology common stock as of the Effective Time, and the holding period of such Homology common stock would begin on the day following the Merger.

The Homology common stock received in the Merger by a U.S. Holder that acquired different blocks of Q32 common stock at different times or at different prices will be allocated pro rata to each block of Q32 common stock of such U.S. Holder, and the basis and holding period of such shares of Homology common stock will be determined using a block for block approach and will depend on the basis and holding period of each block of Q32 common stock exchanged for such Homology common stock.

Material U.S. Federal Income Tax Consequences for Non-U.S. Holders

The discussion below applies to beneficial owners of Homology common stock that are not U.S. Holders or entities or arrangements treated as partnerships or other pass-through entities for U.S. federal income tax purposes (such beneficial owners, Non-U.S. Holders).

In general, the U.S. federal income tax consequences relating to the Merger for a Non-U.S. Holder that exchanges its shares of Q32 common stock for Homology common stock in the Merger will be the same as those described above for a U.S. Holder, except that, even if the Merger did not qualify as a "reorganization" within the meaning of Section 368(a) of the Code, a Non-U.S. Holder generally will not be subject to U.S. federal income tax on any gain realized in connection with the Merger unless:

- such gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable tax treaty, is attributable to a permanent establishment of the Non-U.S. Holder in the United States);
- the Non-U.S. Holder is an individual who is present in the United States for a period or periods aggregating 183 days or more in the taxable year in which the Merger occurs and certain other conditions are met; or
- shares of Q32 common stock constituted a "United States real property interest", or a USRPI, by reason of Q32's status as a "United States real property holding corporation", or a USRPHC, for U.S. federal income tax purposes at any time during the shorter of the five-year period ending on the date of the Merger or the period that such Non-U.S. Holder held shares of Q32 common stock.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such Non-U.S. Holder were a U.S. Holder. A Non-U.S. Holder that is a corporation also may be subject to an additional branch profits tax at a rate of 30% (or such lower rate as may be specified by an applicable tax treaty) on its effectively connected earnings and profits for the taxable year, subject to certain adjustments.

A Non-U.S. Holder described in the second bullet point above will be subject to U.S. federal income tax with respect to such gain at a 30% rate (or such lower rate as may be specified by an applicable tax treaty), which may be offset by such Non-U.S. Holder's U.S. source capital losses, if any, provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the third bullet point above, Q32 does not believe it is, or has been during the five-year period ending on the date of the Merger, a USRPHC.

Non-U.S. Holders should consult their tax advisors regarding the potential application of tax treaties that may provide for different rules with respect to any gain recognized by a Non-U.S. Holder.

Reporting Requirements

If the Merger qualifies as a "reorganization" within the meaning of Section 368(a) of the Code, each U.S. Holder that is a "significant transferor" must include a statement on or with such transferor's U.S. federal income tax return for the taxable year of the Merger. For this purpose, a significant transferor is generally a person that transferred property to a corporation and received stock of the transferee corporation if, immediately after the exchange, such person (i) owns at least five percent (5%) (by vote or value) of the total outstanding stock of the transferee corporation if the stock owned by such person is publicly traded, or (ii) owned at least one percent (1%) (by vote or value) of the total outstanding stock of the transferee corporation if the stock owned by such person is not publicly traded. It is expected that the Homology common stock will be publicly traded for this purpose.

Material U.S. Federal Income Tax Consequences for Holders of Homology Common Stock

There should be no material U.S. federal income tax consequences to Homology stockholders as a result of the Merger because Homology stockholders will not sell, exchange or dispose of any shares of Homology common stock in the Merger.

THE PRECEDING DISCUSSION IS INTENDED ONLY AS A SUMMARY OF CERTAIN U.S. FEDERAL INCOME TAX CONSEQUENCES RELATING TO THE MERGER. IT IS NOT A COMPLETE ANALYSIS OR DISCUSSION OF ALL POTENTIAL TAX EFFECTS THAT MAY BE IMPORTANT TO A PARTICULAR HOLDER OF SHARES OF Q32 COMMON STOCK OR A PARTICULAR HOLDER OF SHARES OF HOMOLOGY COMMON STOCK. ALL HOLDERS OF SHARES OF Q32 COMMON STOCK AND HOLDERS OF SHARES OF HOMOLOGY COMMON STOCK ARE STRONGLY ENCOURAGED TO CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE U.S. FEDERAL INCOME TAX CONSEQUENCES RELATING TO THE MERGER FOR THEM IN LIGHT OF THEIR PARTICULAR CIRCUMSTANCES, INCLUDING THE APPLICABILITY AND EFFECT OF TAX REPORTING REQUIREMENTS, AND THE APPLICABILITY AND EFFECT OF ANY OTHER U.S. FEDERAL TAX LAWS, AND U.S. STATE OR LOCAL, NON-U.S. OR OTHER TAX LAWS.

THE SPECIAL MEETING OF HOMOLOGY STOCKHOLDERS

Date, Time and Place

The Homology Special Meeting will be held on March 15, 2024, commencing at 9:00 a.m., Eastern Time, unless postponed or adjourned to a later date. The Homology Special Meeting will be held entirely online. Homology is sending this proxy statement/prospectus to its stockholders in connection with the solicitation of proxies by Homology's board of directors for use at the Homology Special Meeting and any adjournments or postponements of the Homology Special Meeting. This proxy statement/prospectus is first being sent to Homology stockholders on or about February 14, 2024.

Purposes of the Homology Special Meeting

The purpose of the Homology Special Meeting is:

1. To approve the issuance of shares of common stock of Homology to stockholders of Q32 pursuant to the terms of the Merger Agreement, a copy of which is attached as *Annex A* to this proxy statement/prospectus, pursuant to which Merger Sub will merge with and into Q32, with Q32 surviving as a wholly owned subsidiary of Homology, and the surviving corporation of the Merger, and the change of control resulting from the Merger, or the Stock Issuance Proposal;
2. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to the accompanying proxy statement/prospectus, to increase the number of authorized shares of Homology common stock to 400,000,000, subject to the Homology board of directors' authority to abandon such amendment, or the Authorized Share Increase Proposal;
3. To approve an amendment to the Restated Certificate of Incorporation of Homology, a copy of which is attached as *Annex G* to this proxy statement/prospectus, to effect a reverse stock split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30, as determined by the Homology board of directors in its discretion, subject to the Homology board of directors' authority to abandon such amendment, or the Reverse Stock Split Proposal;
4. To approve on an advisory, non-binding basis certain compensation arrangements for Homology's named executive officers in connection with the Merger, or the Merger Compensation Proposal;
5. To approve the 2024 Stock Option and Incentive Plan, a copy of which is attached as *Annex I* to the accompanying proxy statement/prospectus, or the Stock Option and Incentive Plan Proposal;
6. To approve the 2024 Employee Stock Purchase Plan, a copy of which is attached as *Annex J* to the accompanying proxy statement/prospectus, or the ESPP Proposal; and
7. To consider and vote upon an adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, or the Adjournment Proposal.

The Stock Issuance Proposal is a condition to completion of the Merger. The issuance of Homology common stock in connection with the Merger cannot take place unless the Stock Issuance Proposal is approved by the Homology stockholders. Approval of the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, to amend Homology's Restated Certificate of Incorporation to effect the Authorized Share Increase and the Reverse Stock Split, are also conditions to completion of the Merger. Therefore, the Merger cannot be consummated without the approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

Recommendation of the Homology Board of Directors

The Homology board of directors recommends that you vote:

- **FOR** the approval of the issuance of shares of Homology common stock pursuant to terms of the Merger Agreement and the change of control resulting from the Merger, or the Stock Issuance Proposal.
- **FOR** the approval of an amendment to the Restated Certificate of Incorporation of Homology to effect the Authorized Share Increase, subject to the Homology board of directors' authority to abandon such amendment, as described in this proxy statement/prospectus, or the Authorized Share Increase Proposal.
- **FOR** the approval of an amendment to the Restated Certificate of Incorporation of Homology to effect the Reverse Stock Split, subject to the Homology board of directors' authority to abandon such amendment, as described in this proxy statement/prospectus, or the Reverse Stock Split Proposal.
- **FOR** the approval of certain compensation arrangements for Homology's named executive officers in connection with the Merger, or the Merger Compensation Proposal.
- **FOR** the approval of the 2024 Stock Option and Incentive Plan.
- **FOR** the approval of the 2024 Employee Stock Purchase Plan.
- **FOR** the adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Homology Special Meeting to approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, or the Adjournment Proposal.

Record Date and Voting Power

Only stockholders of record of Homology common stock at the close of business, Eastern Time, on the record date, February 5, 2024, are entitled to notice of, and to vote at, the Homology Special Meeting. As of the Record Date, there were 15 stockholders of record and 58,129,740 shares of Homology common stock issued and outstanding. Each share of Homology common stock entitles the stockholder thereof to one vote on each matter submitted for stockholder approval.

Voting and Revocation of Proxies

The proxy accompanying this proxy statement/prospectus is solicited on behalf of Homology's board of directors for use at the Homology Special Meeting.

If, as of the Record Date, your shares were registered directly in your name with the transfer agent for Homology common stock, Equiniti Trust Company, LLC, then you are a stockholder of record. Whether or not you plan to attend the Homology Special Meeting online, Homology urges you to fill out and return the proxy card or vote over the telephone or on the Internet as instructed below to ensure your vote is counted.

The procedures for voting are as follows:

If you are a stockholder of record, you may vote at the Homology Special Meeting. Alternatively, you may vote by proxy by using the accompanying proxy card, over the Internet or by telephone. Whether or not you plan to attend the Homology Special Meeting, Homology encourages you to vote by proxy to ensure your vote is counted. Even if you have submitted a proxy before the Homology Special Meeting, you may still attend and participate in the Homology Special Meeting online by accessing www.virtualshareholdermeeting.com/FIXX2024SM. In such case, your previously submitted proxy will be disregarded.

- To vote at the Homology Special Meeting, attend the Homology Special Meeting online and follow the instructions posted at www.virtualshareholdermeeting.com/FIXX2024SM.

- To vote using the proxy card, simply complete, sign and date the accompanying proxy card and return it promptly in the envelope provided. If you return your signed proxy card before the Homology Special Meeting, Homology will vote your shares in accordance with the proxy card.
- To vote by proxy over the Internet at http://www.proxyvote.com, follow the instructions on the proxy card.
- To vote by telephone by calling 1-800-690-6903, follow the instructions on the proxy card.

If you are a beneficial owner of shares registered in the name of your broker, bank or other nominee, you should have received a voting instruction card and voting instructions with these proxy materials from your broker, bank or other nominee. Simply complete and mail the voting instruction card to ensure that your vote is counted. To vote live at the Homology Special Meeting, you must obtain a valid proxy from your broker, bank or other nominee. Follow the instructions from your broker, bank or other nominee included with these proxy materials, or contact your broker, bank or other nominee to request a proxy form.

It is anticipated that all of the proposals currently scheduled for consideration at the Homology Special Meeting will be considered "non-routine" matters, and a broker will lack the authority to vote shares at its discretion on such proposals. If you are a beneficial owner and you do not instruct your bank, broker or other nominee on how to vote your shares, your bank, broker or other nominee may not vote your shares on any of the proposals, and your shares will not be represented and will not be voted on any matter.

All properly executed proxies that are not revoked will be voted at the Homology Special Meeting and at any adjournments or postponements of the Homology Special Meeting in accordance with the instructions contained in the proxy. **If a holder of Homology common stock executes and returns a proxy and does not specify otherwise, the shares represented by that proxy will be voted "FOR" all of the proposals in accordance with the recommendation of Homology's board of directors.**

If you are a stockholder of record of Homology and you have not executed a support agreement, you may change your vote at any time before your proxy is voted at the Homology Special Meeting in any one of the following ways:

- You may submit another properly completed proxy with a later date by mail or via the Internet.
- You can provide your proxy instructions via telephone at a later date.
- You may send a written notice that you are revoking your proxy to Homology's Corporate Secretary at One Patriots Park, Bedford, MA 01730.
- You may attend the Homology Special Meeting online and vote by following the instructions at . Simply attending the Homology Special Meeting will not, by itself, revoke your proxy.

If your shares are held by your broker, bank or other agent, you should follow the instructions provided by them.

If your shares are held in "street name" by a bank, broker or other nominee, you will receive instructions on how to vote from the bank, broker or other nominee. You must follow the instructions of such bank, broker or other nominee in order for your shares to be voted.

Required Vote

The presence, remote communication or represented by proxy, at the Homology Special Meeting of the stockholders of a majority in voting power of Homology capital stock issued and outstanding and entitled to vote at the Homology Special Meeting is necessary to constitute a quorum at the meeting. Abstentions and broker non-votes will be counted towards a quorum. The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote thereon,

assuming a quorum is present, is required for approval of all of the proposals. Approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal is a condition to the completion of the Merger. Therefore, the Merger cannot be consummated without the approval of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

The table below summarizes the proposals that will be voted on, the vote required to approve each item and how votes are counted:

Proposal	Votes Required	Voting Options	Impact of "Withhold" or "Abstain" Votes
Proposal No. 1: Approval of the Issuance of Common Stock in the Merger and the Change of Control Resulting from the Merger	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 2: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Authorized Share Increase	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 3: Approval of the Amendment to the Restated Certificate of Incorporation of Homology Effecting the Reverse Stock Split	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 4: Approval on an advisory, non-binding basis of the Merger Compensation Proposal	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 5: Approval of the 2024 Stock Option and Incentive Plan	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 6: Approval of the 2024 Employee Stock Purchase Plan	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)
Proposal No. 7: Approval of Adjournment of the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposals Nos. 1 and 2	The affirmative vote of the stockholders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the stockholders entitled to vote thereon.	"FOR" "AGAINST" "ABSTAIN"	None(1)

(1) A vote marked as an "Abstention" is not considered a vote cast and will, therefore, not affect the outcome of this proposal.

Certain stockholders of Homology have entered into stockholder support agreements pursuant to which they have agreed to vote all shares of Homology common stock owned by them as of the Record Date in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal and against any competing "acquisition proposal" (as defined in the support agreements). As of the Record Date, the Homology stockholders that are party to a support agreement owned approximately 18.3% of the outstanding shares of Homology common stock. These stockholders include certain executive officers and directors of Homology.

Solicitation of Proxies

In addition to solicitation by mail, the directors, officers, employees and agents of Homology may solicit proxies from Homology stockholders by personal interview, telephone, email, fax or otherwise. Homology will pay the cost of printing and filing of this proxy statement/prospectus and the proxy card. Arrangements will also be made with brokerage firms and other custodians, nominees and fiduciaries who are record holders of Homology common stock for the forwarding of solicitation materials to the beneficial owners of Homology common stock. Homology will reimburse these brokers, custodians, nominees and fiduciaries for the reasonable out-of-pocket expenses they incur in connection with the forwarding of solicitation materials. Homology has retained Morrow Sodali to assist it in soliciting proxies. Homology will pay the fees of Morrow Sodali, which Homology expects to be approximately $25,000, plus reimbursement of out-of-pocket expenses.

MATTERS BEING SUBMITTED TO A VOTE OF HOMOLOGY STOCKHOLDERS

PROPOSAL NO. 1: APPROVAL OF THE ISSUANCE OF COMMON STOCK IN THE MERGER AND THE CHANGE OF CONTROL RESULTING FROM THE MERGER

At the Homology Special Meeting, Homology stockholders will be asked to approve the issuance of Homology common stock in the Merger. Immediately following the Merger, it is expected that the former Q32 securityholders will own approximately 75% of the fully-diluted common stock of Homology, with the Homology securityholders as of immediately prior to the Merger holding approximately 25% of the fully-diluted common stock of Homology, subject to certain assumptions, including, but not limited to, Homology's net cash as of closing being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing described elsewhere in this proxy statement/prospectus.

The terms of, reasons for and other aspects of the Merger Agreement, the Merger and the issuance of Homology common stock in the Merger and securities of the combined company are described in detail in the other sections in this proxy statement/prospectus. A copy of the Merger Agreement is attached as *Annex A* to this proxy statement/prospectus.

Under Nasdaq Listing Rule 5635(a)(1), a company listed on Nasdaq is required to obtain stockholder approval prior to the issuance of common stock in connection with the acquisition of another company's stock, if the number of shares of common stock to be issued will have, upon issuance, voting power equal to or in excess of 20% of the voting power of the shares of common stock outstanding before such issuance. The potential issuance of the shares of Homology common stock in the Merger exceeds the 20% threshold under Nasdaq Listing Rule 5635(a)(1) and is expected to represent approximately 75% of the voting power of Homology common stock following the Merger. Accordingly, in order to ensure compliance with Nasdaq Listing Rule 5635(a)(1), Homology must obtain the approval of Homology stockholders for the issuance of the shares of common stock to be issued in the Merger.

Under Nasdaq Listing Rule 5635(b), a company listed on Nasdaq is required to obtain stockholder approval prior to an issuance of securities that will result in a "change of control" of the company. Although Nasdaq has not adopted any rule as to what constitutes a "change of control" for purposes of Rule 5635(b), Nasdaq has previously indicated that the acquisition of, or right to acquire, by a single investor or affiliated investor group, as little as 20% of the common stock (or securities convertible into or exercisable for common stock) or voting power of an issuer could constitute a change of control. Accordingly, in order to ensure compliance with Nasdaq Listing Rule 5635(b), Homology must obtain the approval of Homology stockholders of the change of control resulting from the Merger.

If Homology reasonably believes that (i) it will not receive proxies sufficient to obtain the required Homology stockholder vote, whether or not a quorum would be present or (ii) it will not have sufficient shares of Homology Common Stock represented to constitute a quorum necessary to conduct the business of the Homology Special Meeting, Homology may postpone or adjourn the Homology Special Meeting as long as the date of the Homology Special Meeting is not postponed or adjourned more than an aggregate of 30 days in connection with any postponements or adjustments. Homology current does not intend to propose postponement or adjournment at the Homology Special Meeting if there are sufficient votes to approve this proposal and the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

Required Vote

The affirmative vote of a majority in voting power of the votes cast affirmatively or negatively in attendance or represented by proxy at the Homology Special Meeting and entitled to vote on the matter is required to approve the issuance of Homology common stock in the Merger and the change of control of Homology resulting from the Merger.

HOMOLOGY'S BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 1 TO APPROVE THE ISSUANCE OF HOMOLOGY COMMON STOCK IN THE MERGER AND THE CHANGE OF CONTROL OF HOMOLOGY RESULTING FROM THE MERGER.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy card to vote shares represented by properly executed proxy cards "**FOR**" the approval of the issuance of Homology common stock in the Merger and the change of control of Homology resulting from the Merger.

PROPOSAL NO. 2: APPROVAL OF THE AMENDMENT TO THE RESTATED CERTIFICATE OF INCORPORATION OF HOMOLOGY EFFECTING THE AUTHORIZED SHARE INCREASE

General

At the Homology Special Meeting, Homology stockholders will be asked to approve a proposal to adopt an amendment to the Restated Certificate of Incorporation of Homology to increase the number of authorized shares of Homology common stock from 200,000,000 shares to 400,000,000 shares.

The Restated Certificate of Incorporation of Homology currently authorizes 200,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, of which 58,129,740 shares of common stock and no shares of preferred stock were outstanding as of February 5, 2024, the record date for the Homology Special Meeting. The proposed amendment to Restated Certificate of Incorporation of Homology would not increase or otherwise affect its authorized preferred stock. Homology common stock is all of a single class, with equal voting, distribution, liquidation and other rights. The additional Homology common stock to be authorized by adoption of the amendment would have rights identical to Homology's currently outstanding common stock.

The form of the amendment to the Restated Certificate of Incorporation of Homology to increase the number of authorized shares of Homology common stock, which Homology's board of directors approved and declared advisable on January 26, 2024, is attached as *Annex G* to this proxy statement/prospectus. If Homology's stockholders approve this proposal, subject to the discretion of Homology's board of directors, Homology intends to file the amendment to the Restated Certificate of Incorporation of Homology with the Secretary of State of the State of Delaware prior to the Effective Time. In the event that Homology's board of directors determines to effect the authorized share increase that is the subject of this Authorized Share Increase Proposal and the Reverse Stock Split that is the subject of the Reverse Stock Split Proposal, assuming that each proposal is approved by the Homology stockholders, Homology's board of directors would effect the authorized share increase before effecting the Reverse Stock Split.

Background and Reasons for the Charter Amendment

As described in greater detail in the Stock Issuance Proposal, Homology will be required to issue shares of Homology common stock to Q32 stockholders pursuant to the terms of the Merger Agreement. In addition, if the Stock Option and Incentive Plan Proposal and the ESPP Proposal are approved, Homology will reserve additional shares of Homology common stock for future issuance under the 2024 Stock Option and Incentive Plan and the 2024 Employee Stock Purchase Plan. To the extent the Reverse Stock Split Proposal is approved and the Reverse Stock Split is implemented, the authorized shares of Homology will be proportionately reduced in accordance with the split to be determined in the discretion of Homology's board of directors as described in greater detail in the Reverse Stock Split Proposal.

Homology's board of directors believes that as a result of the foregoing, the number of authorized shares of Homology common stock that would be authorized and unissued and not reserved for issuance will not be an adequate number of shares to assure that there will be sufficient shares available for (i) the issuance of shares of Homology common stock to Q32 stockholders pursuant to the terms of the Merger Agreement, (ii) the issuance of shares of Homology common stock pursuant to the terms of the Merger Agreement, (iii) future issuance under the 2024 Stock Option and Incentive Plan, (iv) future issuance under the 2024 Employee Stock Purchase Plan and (v) the issuance of shares of Homology common stock underlying Homology options, including Homology ITM Options, and Homology Restricted Stock Units. In addition, there will not be sufficient shares available for issuance in connection with possible future acquisitions, equity and equity-based financings, possible future awards under employee benefit plans and other corporate purposes. Therefore, Homology's board of directors has determined that it is in the best interests of Homology and its stockholders to amend the Restated Certificate of Incorporation of Homology as described herein.

Except for (i) the issuance of shares of Homology common stock to Q32 stockholders pursuant to the terms of the Merger Agreement, which is the subject of the Stock Issuance Proposal and which is described elsewhere in this proxy statement/prospectus, (ii) the issuance of shares of Homology common stock pursuant to the terms of the Merger Agreement, which is described elsewhere in this proxy statement/prospectus, (iii) future issuance under the 2024 Stock Option and Incentive Plan, which is the subject of the Stock Option and Incentive Plan Proposal and which is described elsewhere in this proxy statement/prospectus, (iv) future issuance under the 2024 Employee Stock Purchase Plan, which is the subject of the ESPP Proposal and which is described elsewhere in this proxy statement/prospectus and (v) the issuance of shares of Homology common stock underlying Homology options, including Homology ITM Options, and Homology Restricted Stock Units, Homology does not currently have any plans, proposals or arrangement to issue any of its authorized but unissued shares of common stock.

Possible Effects of the Amendment

If the amendment to the Restated Certificate of Incorporation of Homology is approved, the additional authorized shares would be available for issuance at the discretion of Homology's board of directors and without further stockholder approval, except as may be required by law or the rules of The Nasdaq Stock Market on which Homology common stock is listed. The additional shares of authorized common stock would have the same rights and privileges as the shares of Homology common stock currently issued and outstanding. Holders of Homology common stock have no preemptive rights.

The issuance of additional shares of Homology common stock may, among other things, have a dilutive effect on earnings per share and on stockholders' equity and voting rights. Furthermore, future sales of substantial amounts of Homology common stock, or the perception that these sales might occur, could adversely affect the prevailing market price of Homology common stock or limit Homology's ability to raise additional capital. Stockholders should recognize that, as a result of this proposal, they will own a smaller percentage of shares relative to the total authorized shares of the company than they presently own.

Required Vote

The affirmative vote of a majority in voting power of the votes cast affirmatively or negatively in attendance or represented by proxy at the Homology Special Meeting and entitled to vote on the matter is required to approve the amendment to the Restated Certificate of Incorporation of Homology effecting the Authorized Share Increase, subject to the Homology board of directors' authority to abandon such amendment.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 2 TO APPROVE THE AMENDMENT TO THE RESTATED CERTIFICATE OF INCORPORATION EFFECTING THE AUTHORIZED SHARE INCREASE.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy card to vote shares represented by properly executed proxy cards "**FOR**" the approval of the amendment to the Restated Certificate of Incorporation of Homology to effect the Authorized Share Increase.

PROPOSAL NO. 3: APPROVAL OF THE AMENDMENT TO THE RESTATED CERTIFICATE OF INCORPORATION OF HOMOLOGY EFFECTING THE REVERSE STOCK SPLIT

The Homology board of directors has approved and, subject to stockholder approval, adopted a resolution (1) declaring advisable, and recommending to the Homology stockholders for their approval, an amendment to the Restated Certificate of Incorporation, to give the Homology's board of directors discretionary authority to effect a Reverse Stock Split of Homology's issued and outstanding common stock at a ratio ranging from any whole number between 1-for-10 and 1-for-30, as determined by the Homology board of directors in its discretion, subject to the Homology board of directors' authority to determine when to file the amendment and to abandon the other amendments notwithstanding prior stockholder approval of such amendments, (2) directing that such proposed amendments to Homology's Restated Certificate of Incorporation be submitted to the Homology stockholders for their approval and adoption, and (3) recommending that the Homology stockholders approve and adopt the proposed amendment. The text of the form of Certificate of Amendment would be filed with the Delaware Secretary of State to effect the Reverse Stock Split, are set forth in *Annex G* to this proxy statement/prospectus.

Reverse Stock Split Amendment

By approving this proposal, stockholders will approve alternative amendments to the Homology Restated Certificate of Incorporation pursuant to which a number of outstanding shares of Homology common stock between 10 and 30, inclusive, would be combined into one share of Homology common stock. The number of shares of common stock underlying outstanding equity awards and available for future awards under Homology's equity incentive plans, would also be proportionately reduced in the same manner as a result of the Reverse Stock Split. Upon receiving stockholder approval, the Homology board of directors will have the authority, but not the obligation, in its sole discretion, to elect, without further action on the part of the stockholders, whether to effect the Reverse Stock Split and, if so, to determine the Reverse Stock Split ratio from among the approved range described above and to effect the Reverse Stock Split by filing a Certificate of Amendment with the Secretary of State of the State of Delaware to be effective prior to the Effective Time, and all other amendments will be abandoned.

The Homology board of directors' decision as to whether and when to effect the Reverse Stock Split will be based on a number of factors, including, without limitation, general market and economic conditions, the historical and then-prevailing trading price and trading volume of Homology common stock, the anticipated impact of the Reverse Stock Split on the trading price and trading volume of Homology common stock, the anticipated impact on Homology's market capitalization, and the continued listing requirements of Nasdaq. Although the Homology stockholders may approve the Reverse Stock Split, Homology will not effect the Reverse Stock Split if the Homology board of directors does not deem it to be in the best interests of Homology and its stockholders.

Because the Reverse Stock Split will decrease the number of outstanding shares of Homology common stock by a ratio in the range of 1-for-10 to 1-for-30 but would not effect a decrease to the number of shares of common stock that Homology will be authorized to issue, the proposed Reverse Stock Split Amendments would result in a relative increase in the number of authorized and unissued shares of Homology common stock. For more information on the relative increase in the number of authorized shares of Homology common stock, see "*—Principal Effects of the Reverse Stock Split —Issued and Outstanding Shares of Common Stock*" below.

Purpose of the Reverse Stock Split

The Homology board of directors submits the Reverse Stock Split Proposal to its stockholders for approval and adoption with the primary intent of increasing the per share price of Homology common stock for the following principal reasons:

- to encourage increased investor interest in Homology common stock and promote greater liquidity for its stockholders;

- to help attract, retain, and motivate employees; and
- to ensure the continued listing of Homology common stock to facilitate the closing of the Merger.

Investor Interest and Liquidity

In addition, in approving the proposed Reverse Stock Split Amendments, the Homology board of directors considered that the Reverse Stock Split and the resulting increase in the per share price of Homology common stock could encourage increased investor interest in Homology common stock and promote greater liquidity for its stockholders.

In the event that Homology common stock were to be delisted from Nasdaq, Homology common stock would likely trade in the over-the-counter market. If Homology common stock were to trade on the over-the-counter market, selling Homology common stock could be more difficult because smaller quantities of shares would likely be bought and sold, and transactions could be delayed. In addition, many brokerage houses and institutional investors have internal policies and practices that prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers, further limiting the liquidity of Homology common stock. These factors could result in lower prices and larger spreads in the bid and ask prices for Homology common stock. Additionally, investors may be dissuaded from purchasing lower priced stocks because the brokerage commissions, as a percentage of the total transaction, tend to be higher for such stocks. Moreover, the analysts at many brokerage firms do not monitor the trading activity or otherwise provide coverage of lower priced stocks. A greater price per share of Homology common stock could allow a broader range of institutions to invest in Homology common stock. For all of these reasons, Homology believes the Reverse Stock Split could potentially increase marketability, trading volume, and liquidity of Homology common stock.

Employee Retention

The Homology board of directors believe that Homology's employees and directors who are compensated in the form of Homology's equity-based securities may be less incentivized and invested in Homology if Homology is no longer listed on Nasdaq. Accordingly, the Homology board of directors believe that maintaining Nasdaq listing qualifications for Homology common stock, can help attract, retain, and motivate employees and members of the Homology board of directors.

In light of the factors mentioned above, the Homology board of directors unanimously approved the proposed Reverse Stock Split Amendments to effect the Reverse Stock Split as Homology's best means of increasing and maintaining the price of Homology common stock to above $1.00 per share in compliance with Nasdaq requirements.

Homology Board of Directors Discretion to Implement the Reverse Stock Split

The Homology board of directors believe that stockholder approval of a range of ratios (as opposed to a single Reverse Stock Split ratio) is in the best interests of Homology and stockholders because it is not possible to predict market conditions at the time the Reverse Stock Split would be effected. Homology believes that a range of Reverse Stock Split ratios provides Homology with the most flexibility to achieve the desired results of the Reverse Stock Split. The Reverse Stock Split ratio to be selected by the Homology board of directors will be a whole number in a range of 1-for-10 to 1-for-30. The Homology board of directors can only authorize the filing of one Reverse Stock Split Amendment and all other Reverse Stock Split Amendments will be abandoned. The Homology board of directors also has the authority to abandon all Reverse Stock Split Amendments.

In determining the Reverse Stock Split ratio and whether and when to effect the Reverse Stock Split following the receipt of stockholder approval, the Homology board of directors will consider a number of factors, including, without limitation:

- Homology's ability to maintain the listing of its common stock on Nasdaq;

- the historical trading price and trading volume of Homology common stock;
- the number of shares of Homology common stock outstanding immediately before and after the Reverse Stock Split;
- the then-prevailing trading price and trading volume of Homology common stock and the anticipated impact of the Reverse Stock Split on the trading price and trading volume of its common stock;
- the anticipated impact of a particular ratio on Homology's market capitalization; and
- prevailing general market and economic conditions.

Homology believes that granting the Homology board of directors the authority to set the ratio for the Reverse Stock Split is essential because it allows Homology to take these factors into consideration and to react to changing market conditions. If the Homology board of directors choose to implement the Reverse Stock Split, Homology will make a public announcement regarding the determination of the Reverse Stock Split ratio.

Risks Associated with the Reverse Stock Split

There are risks associated with the Reverse Stock Split, including that the Reverse Stock Split may not result in a sustained increase in the per share price of Homology common stock. For risks associated with the Reverse Stock Split see "*Risk Factors—Risks Related to the Proposed Reverse Stock Split*" in this proxy statement/prospectus. Stockholders should note that the effect of the Reverse Stock Split, if any, upon the trading price of Homology common stock cannot be accurately predicted. In particular, Homology cannot assure you that the price for a share of Homology common stock after the Reverse Stock Split will increase in proportion to the reduction in the number of shares of Homology common stock outstanding before the Reverse Stock Split or, even if it does, that such price will be maintained for any period of time.

Even if an increased per share price can be maintained, the Reverse Stock Split may not achieve the desired results that have been outlined above under "*Purpose of the Reverse Stock Split*." Moreover, because some investors may view the Reverse Stock Split negatively, Homology cannot assure you that the Reverse Stock Split will not adversely impact the market price of the common stock.

While Homology's aim is that the Reverse Stock Split will be sufficient to maintain Homology's listing on Nasdaq, it is possible that, even if the Reverse Stock Split results in a bid price for Homology common stock that exceeds $1.00 per share of common stock, Homology may not be able to continue to satisfy Nasdaq's additional requirements and standards for continued listing of Homology common stock on Nasdaq.

Homology believes that the Reverse Stock Split may result in greater liquidity for its stockholders. However, it is also possible that such liquidity could be adversely affected by the reduced number of shares outstanding after the Reverse Stock Split, particularly if the price of Homology common stock does not increase as a result of the Reverse Stock Split.

Additionally, if the Reverse Stock Split is implemented, it may increase the number of stockholders who own "odd lots" of less than 100 shares of common stock. A purchase or sale of less than 100 shares (an "odd lot" transaction) may result in incrementally higher trading costs through certain brokers, particularly "full service" brokers. Therefore, those stockholders who own fewer than 100 shares of Homology common stock following the Reverse Stock Split may be required to pay higher transaction costs if they sell their shares of Homology common stock.

Principal Effects of the Reverse Stock Split

Issued and Outstanding Shares of Common stock

If the Reverse Stock Split is approved and effected, each holder of Homology common stock outstanding immediately prior to the effectiveness of the Reverse Stock Split will own a reduced number of shares of

Homology common stock upon effectiveness of the Reverse Stock Split. The Reverse Stock Split would be effected simultaneously at the same exchange ratio for all outstanding shares of common stock, as required by Homology's Restated Certificate of Incorporation. Except for adjustments that may result from the treatment of fractional shares (as described below), the Reverse Stock Split would affect all stockholders uniformly and would not change any stockholder's relative percentage ownership interest in Homology, voting rights, or other rights that accompany shares of Homology common stock. Shares of Homology common stock issued pursuant to the Reverse Stock Split will remain fully paid and non-assessable, and the par value per share of common stock will remain $0.0001.

Relative Increase in Number of Authorized Shares of Common stock for Issuance

In the event that Homology's board of directors determines to effect the Authorized Share Increase that is the subject of the Authorized Share Increase Proposal described under the heading "PROPOSAL NO. 2: APPROVAL OF THE AMENDMENT TO THE RESTATED CERTIFICATE OF INCORPORATION OF HOMOLOGY EFFECTING THE AUTHORIZED SHARE INCREASE," the Restated Certificate of Incorporation will be amended to increase the number of authorized shares of Homology Common Stock from 200,000,000 shares to 400,000,000 shares. The Reverse Stock Split will not change the number of authorized shares of common stock. Although the number of authorized shares will not change as a result of the Reverse Stock Split, the number of issued and outstanding shares of Homology Common Stock will be reduced in proportion to the ratio selected by the Homology board of directors. Thus, the Reverse Stock Split will effectively increase the number of shares of Homology Common Stock the board of directors is authorized to issue under the Restated Certificate of Incorporation.

If the proposed Reverse Stock Split Amendment is approved, all or any of the authorized and unissued shares of Homology common stock may be issued in the future for such corporate purposes and such consideration as the Homology board of directors deem advisable from time to time, without further action by the stockholders of Homology and without first offering such shares to its stockholders. When and if additional shares of Homology common stock are issued, these new shares would have the same voting and other rights and privileges as the currently issued and outstanding shares of common stock, including the right to cast one vote per share.

Except pursuant to Homology's equity incentive plans, Homology presently has no plan, commitment, arrangement, understanding, or agreement regarding the issuance of common stock other than the Merger Agreement and the Merger. However, Homology regularly considers its capital requirements and may conduct securities offerings, including equity and/or equity linked offerings, in the future. Any shares issuable pursuant to the above-described plans will be subject to the Reverse Stock Split ratio determined by the Homology board of directors.

Because Homology's stockholders have no preemptive rights to purchase or subscribe for any of the unissued shares of common stock, the future issuance of additional shares of common stock will reduce Homology's current stockholders' percentage ownership interest in the total outstanding shares of common stock. In the absence of a proportionate increase in Homology's future earnings and book value, an increase in the number of Homology's outstanding shares of common stock would dilute Homology's projected future earnings per share, if any, and book value per share of all Homology's outstanding shares of common stock. If these factors were reflected in the price per share of Homology common stock, the potential realizable value of a stockholder's investment could be adversely affected. An issuance of additional shares could therefore have an adverse effect on the potential realizable value of a stockholder's investment.

Equity Compensation Plans and Outstanding Equity-Based Awards

Homology maintains the Homology Medicines, Inc. 2015 Stock Incentive Plan, or the Homology 2015 Plan, the Homology Medicines, Inc. 2018 Incentive Award Plan, or the Homology 2018 Plan, and the Homology

Medicines, Inc. 2018 Employee Stock Purchase Plan, or the Homology ESPP, and collectively and together with any sub-plans thereunder, the Homology Plans, which are designed primarily to provide stock-based incentives to individual service providers of Homology.

The Homology board of directors generally has the discretion to determine the appropriate adjustments to the Homology Plans and outstanding awards and purchase rights under the Homology Plans in the event of a Reverse Stock Split. Accordingly, if the Reverse Stock Split is approved and effected, consistent with the terms of the Homology Plans and outstanding award agreements, the total number of shares of common stock issuable upon exercise, vesting or settlement of such awards or purchase rights and the total number of shares of common stock remaining available for future awards or purchase under the Homology Plans, as well as any share-based limits in the Homology Plans, would be proportionately reduced based on the Reverse Stock Split ratio selected by the Homology board of directors, and any fractional shares that may result therefrom shall be rounded down to the nearest whole share. Furthermore, the exercise or purchase price of any outstanding Homology options or purchase rights would be proportionately increased based on the Reverse Stock Split ratio selected by the Homology board of directors, and any fractional cents that may result therefrom shall be rounded up to the nearest whole cent. In addition, the numbers of shares subject to awards to be automatically granted in the future under the Homology Plans pursuant to the non-employee director compensation program will be proportionately reduced based on the Reverse Stock Split ratio selected by the Homology board of directors.

Illustration

For purposes of illustration, the following table contains approximate information relating to Homology common stock if the Reverse Stock Split is effected at a ratio of: 1-for-10, 1-for-15, 1-for-20, 1-for-25 and 1-for-30, based on share information as of the close of business on February 5, 2024, and assumes the Authorized Share Increase Proposal is approved, but does not give effect to any other changes, including any issuance of securities after February 5, 2024:

	Before the Reverse Stock Split and Authorized Share Increase	1-for-10	1-for-15	1-for-20	1-for-25	1-for-30
Number of Shares Authorized	200,000,000	400,000,000	400,000,000	400,000,000	400,000,000	400,000,000
Number of Shares Issued and Outstanding	58,129,740	5,812,974	3,875,316	2,906,487	2,325,190	1,937,658
Number of Shares Authorized but not Issued and Outstanding	141,870,260	394,187,026	396,124,684	397,093,513	397,674,810	398,062,342

Procedure for Effecting the Reverse Stock Split and Exchange of Stock Certificates, if Applicable

If the proposed Reverse Stock Split Amendments are approved by Homology's stockholders and Homology's board of directors determines to effect the Reverse Stock Split, the Reverse Stock Split will become effective upon the filing of the Certificate of Amendment with the Secretary of State of the State of Delaware. At the Effective Time, shares of Homology common stock issued and outstanding immediately prior thereto will be combined, automatically and without any action on the part of the stockholders, into new shares of common stock, in accordance with the Reverse Stock Split ratio contained in the Certificate of Amendment.

Registered "Book-Entry" Stockholders of Homology Common Stock

As soon as practicable after the Effective Time, stockholders will be notified by the transfer agent that the Reverse Stock Split has been effected. As all of the outstanding shares of Homology common stock are held in book-entry form, you will not need to take any action to receive post-Reverse Stock Split shares of Homology common stock upon the filing of the Certificate of Amendment. As soon as practicable after the Effective Time, the transfer agent will send to your registered address a transmittal letter along with a statement of ownership indicating the number of post-Reverse Stock Split shares of common stock you hold. If applicable, a check representing a cash payment in lieu of fractional shares will also be mailed to your registered address as soon as practicable after the Effective Time (see "—*Fractional Shares*" below).

Beneficial Stockholders of Homology Common Stock

Upon the implementation of the Reverse Stock Split, Homology intends to treat shares of common stock held by stockholders in "street name" (i.e., through a bank, broker, custodian, or other nominee), in the same manner as registered "book-entry" stockholders of common stock. Banks, brokers, custodians or other nominees will be instructed to effect the Reverse Stock Split for their beneficial stockholders holding Homology common stock in street name. However, these banks, brokers, custodians or other nominees may have different procedures than registered stockholders for processing the Reverse Stock Split and making payment for fractional shares. If a stockholder holds shares of Homology common stock with a bank, broker, custodian, or other nominee and has any questions in this regard, stockholders are encouraged to contact their bank, broker, custodian, or other nominee.

Stockholders of Certificated Shares of Homology Common Stock

The transfer agent will act as exchange agent for purposes of implementing the exchange of stock certificates, if applicable. If you are a stockholder holding pre-Reverse Stock Split shares in certificate form, you will receive a transmittal letter from the transfer agent as soon as practicable after the Effective Time. The transmittal letter will be accompanied by instructions specifying how you can exchange your certificate or certificates representing the pre-Reverse Stock Split shares of Homology common stock for a statement of ownership. When you submit your certificate or certificates representing the pre-Reverse Stock Split shares of Homology common stock, your post-Reverse Stock Split shares of Homology common stock will be held electronically in book-entry form in the Direct Registration System. This means that, instead of receiving a new stock certificate representing the aggregate number of post-Reverse Stock Split shares you own, you will receive a statement indicating the number of post-Reverse Stock Split shares you own in book-entry form. Homology will no longer issue physical stock certificates unless you make a specific request for a certificate representing your post-Reverse Stock Split ownership interest.

Fractional Shares

No scrip or fractional shares would be issued if, as a result of the Reverse Stock Split, a stockholder would otherwise become entitled to a fractional share because the number of shares of common stock they hold before the Reverse Stock Split is not evenly divisible by the split ratio ultimately determined by the Homology board of directors. Instead, each stockholder will be entitled to receive a cash payment in lieu of such fractional share. The cash payment to be paid will be equal to the fraction of a share to which such stockholder would otherwise be entitled multiplied by the closing price per share of common stock on the date of the Effective Time as reported by Nasdaq (as adjusted to give effect to the Reverse Stock Split). No transaction costs would be assessed to stockholders for the cash payment. Stockholders would not be entitled to receive interest for their fractional shares for the period of time between the Effective Time and the date payment is issued or received.

After the Reverse Stock Split, then-current stockholders would have no further interest in Homology with respect to their fractional shares. A person entitled to a fractional share would not have any voting, dividend or other rights in respect of their fractional share except to receive the cash payment as described above. Such cash

payments would reduce the number of post-Reverse Stock Split stockholders to the extent that there are stockholders holding fewer than that number of pre-Reverse Stock Split shares within the Reverse Stock Split ratio that is determined by the Homology board of directors as described above. Reducing the number of post-Reverse Stock Split stockholders, however, is not the purpose of this proposal.

Stockholders should be aware that, under the escheat laws of the various jurisdictions where stockholders reside, where Homology is domiciled and where the funds for fractional shares would be deposited, sums due to stockholders in payment for fractional shares that are not timely claimed after the Effective Time may be required to be paid to the designated agent for each such jurisdiction. Thereafter, stockholders otherwise entitled to receive such funds may have to seek to obtain them directly from the state to which they were paid.

No Appraisal Rights

Under the DGCL, Homology's stockholders will not be entitled to appraisal rights with respect to the Reverse Stock Split, and Homology does not intend to independently provide stockholders with any such right.

No Going Private Transaction

Notwithstanding the decrease in the number of outstanding shares following the Reverse Stock Split, the Homology board of directors does not intend for this transaction to be the first step in a series of plans or proposals of a "going private transaction" within the meaning of Rule 13e-3 of the Exchange Act.

Interests of Certain Persons in the Proposal

Certain of Homology's officers and directors have an interest in this proposal as a result of their ownership of shares of Homology common stock, as set forth below in the section entitled "*Principal Stockholders of Homology*". However, Homology does not believe that its officers or directors have interests in this proposal that are different from or greater than those of any of the other stockholders.

Anti-Takeover Effects of Proposed Amendment

Release No. 34-15230 of the staff of the SEC requires disclosure and discussion of the effects of any action, including the proposed Reverse Stock Split Amendments discussed herein, that may be used as an anti-takeover mechanism. An additional effect of the Reverse Stock Split would be to increase the relative amount of authorized but unissued shares of common stock, which may, under certain circumstances, be construed as having an anti-takeover effect. Although not designed or intended for such purposes, the effect of the increased available shares might be to make more difficult or to discourage an attempt to take over or otherwise acquire control of Homology (for example, by permitting issuances that would dilute the stock ownership of a person or entity seeking to effect a change in the composition of the board of directors or contemplating a tender offer or other change in control transaction). In addition, Homology's Restated Certificate of Incorporation and Amended and Restated Bylaws include provisions that may have an anti-takeover effect. These provisions, among things, permit the Homology board of directors to issue preferred stock with rights senior to those of the common stock without any further vote or action by the stockholders and do not provide for cumulative voting rights, which could make it more difficult for stockholders to effect certain corporate actions and may delay or discourage a change in control.

The Homology board of directors is not presently aware of any attempt, or contemplated attempt, to acquire control of Homology, and the Reverse Stock Split Proposal is not part of any plan by the Homology board of directors to recommend or implement a series of anti-takeover measures.

Accounting Treatment of the Reverse Stock Split

If the Reverse Stock Split is effected, the par value per share of Homology common stock will remain unchanged at $0.0001. Accordingly, at the Effective Time, the stated capital on Homology's consolidated

balance sheets attributable to Homology common stock will be reduced in proportion to the size of the Reverse Stock Split ratio, and the additional paid-in-capital account will be increased by the amount by which the stated capital is reduced. The stockholders' equity, in the aggregate, will remain unchanged. Per share net income or loss will be increased because there will be fewer shares of common stock outstanding. Homology does not anticipate that any other accounting consequences, including changes to the amount of stock-based compensation expense to be recognized in any period, will arise as a result of the Reverse Stock Split.

Material U.S. Federal Income Tax Consequences of the Reverse Stock Split to U.S. Holders of Homology Common Stock

The following discussion is a summary of the material U.S. federal income tax consequences of the Reverse Stock Split to U.S. Holders of Homology common stock, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local, or non-U.S. tax laws are not discussed. Furthermore, the following discussion does not address any tax consequences of transactions effectuated before, after or at the same time as the Reverse Stock Split (except, to the limited extent discussed in the section entitled "*Agreements Related to the Merger—Contingent Value Rights Agreement—Material U.S. Federal Income Tax Consequences of the CVRs to Holders of Homology Common Stock*," the distribution of the CVRs), whether or not they are in connection with the Reverse Stock Split.

This discussion is based on the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the IRS, in each case, as in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a U.S. Holder. Homology has not sought and will not seek an opinion of counsel or any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the Reverse Stock Split.

This discussion is limited to U.S. Holders who hold their Homology common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to the particular circumstances of a U.S. Holder, including the impact of the Medicare contribution tax on net investment income and the alternative minimum tax. In addition, it does not address consequences relevant to U.S. Holders that are subject to particular rules, including, without limitation:

- U.S. expatriates or former citizens or long-term residents of the United States;
- persons whose functional currency is not the U.S. dollar;
- persons holding Homology common stock as part of a hedge, straddle, or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;
- brokers, dealers, or traders in securities;
- S corporations, partnerships, or other entities or arrangements treated as pass-through entities for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations, qualified retirement plans, individual retirement accounts or other tax deferred accounts, or governmental organizations;
- persons deemed to sell Homology common stock under the constructive sale provisions of the Code;
- persons who hold or receive Homology common stock pursuant to the exercise of any employee stock options or otherwise as compensation;

- persons who are not U.S. Holders;
- corporations that accumulate earnings to avoid U.S. federal income tax; and
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the Homology common stock being taken into account in an applicable financial statement.

If a partnership, or an entity treated as a partnership for U.S. federal income tax purposes, holds Homology common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership, and certain determinations made at the partner level. Accordingly, partnerships holding Homology common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS NOT TAX ADVICE. HOLDERS OF HOMOLOGY COMMON STOCK SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE REVERSE STOCK SPLIT ARISING UNDER OTHER U.S. FEDERAL TAX LAWS (INCLUDING ESTATE AND GIFT TAX LAWS), UNDER THE LAWS OF ANY STATE, LOCAL, OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

Material U.S. Federal Income Tax Consequences for U.S. Holders

For purposes of this discussion, a "U.S. Holder" is any beneficial owner of Homology common stock that, for U.S. federal income tax purposes, is or is treated as:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized in or under the laws of the United States, any state thereof, or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and all substantial decisions of which are subject to the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

The Reverse Stock Split should constitute a "recapitalization" for U.S. federal income tax purposes. As a result, a U.S. Holder generally should not recognize gain or loss upon the Reverse Stock Split, except as described below with respect to cash received in lieu of fractional shares. A U.S. Holder's aggregate tax basis in the shares of the Homology common stock received pursuant to the Reverse Stock Split should equal such holder's aggregate tax basis in the shares of the Homology common stock surrendered (excluding any portion of such basis that is allocated to any fractional share of Homology common stock), and such holder's holding period in the shares of the Homology common stock received should include the holding period of the shares of the Homology common stock surrendered. Treasury Regulations promulgated under the Code provide detailed rules for allocating the tax basis and holding period of the shares of Homology common stock surrendered pursuant to the Reverse Stock Split to the shares of Homology common stock received pursuant to the Reverse Stock Split. U.S. Holders holding shares of Homology common stock that were acquired on different dates and at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

A U.S. Holder who receives cash in lieu of a fractional share of Homology common stock should be treated as first receiving such fractional share and then receiving cash in redemption of such fractional share. A U.S. Holder who receives cash in lieu of a fractional share in the Reverse Stock Split should recognize capital gain or

loss in an amount equal to the difference between the amount of the cash received in lieu of a fractional share and the portion of such stockholder's adjusted tax basis allocable to the fractional share. Such capital gain or loss should be long-term capital gain or loss if the U.S. Holder's holding period for the Homology common stock surrendered exceeded one year at the Effective Time of the Reverse Stock Split. The deductibility of capital losses is subject to limitations. U.S. Holders should consult their tax advisors regarding the tax effects to them of receiving cash in lieu of fractional shares based on their particular circumstances.

U.S. Holders (other than corporations and certain other exempt recipients) may be subject to information reporting with respect to any cash received in exchange for a fractional share interest in a new share in the Reverse Stock Split. U.S. Holders who are subject to information reporting and who do not provide a correct taxpayer identification number and other required information (such as by submitting a properly completed IRS Form W-9) may also be subject to backup withholding at the applicable rate. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be refunded or credited against the U.S. Holder's U.S. federal income tax liability, if any, provided that the required information is properly furnished in a timely manner to the IRS. U.S. Holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

Required Vote

The affirmative vote of a majority in voting power of the votes cast affirmatively or negatively in attendance or represented by proxy at the Homology Special Meeting and entitled to vote on the matter is required to approve the amendment to the Restated Certificate of Incorporation of Homology effecting the Reverse Stock Split, subject to the Homology board of directors' authority to abandon such amendment.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 3 TO APPROVE THE AMENDMENT TO THE RESTATED CERTIFICATE OF INCORPORATION EFFECTING THE REVERSE STOCK SPLIT.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy card to vote shares represented by properly executed proxy cards "**FOR**" the approval of the amendment to the Restated Certificate of Incorporation of Homology to effect the Reverse Stock Split.

PROPOSAL NO. 4: APPROVAL OF THE MERGER COMPENSATION PROPOSAL

Overview

Pursuant to Section 14A of the Exchange Act and Rule 14a-21(c) thereunder, Homology is seeking a non-binding advisory shareholder approval of certain compensation arrangements for Homology's named executive officers that is based on or otherwise relates to the Merger as disclosed pursuant to Item 402(t) of Regulation S-K in the "*Golden Parachute Compensation*" table and the footnotes to that table contained in the section captioned "*The Merger — Interests of Homology Directors and Executive Officers in the Merger — Golden Parachute Compensation*." Homology is therefore asking shareholders to adopt the following resolution:

> **"RESOLVED, that certain compensation arrangements for Homology's named executive officers in connection with the Merger, as disclosed pursuant to Item 402(t) of Regulation S-K in the "*Golden Parachute Compensation*" table and the footnotes to that table contained in the section captioned "*The Merger — Interests of Homology Directors and Executive Officers in the Merger — Golden Parachute Compensation*," are hereby APPROVED on a non-binding, advisory basis."**

Because the vote is advisory in nature only, it will not be binding on Homology. Accordingly, to the extent Homology is contractually obligated to pay the compensation, the compensation will be payable to the named executive officers, subject only to the conditions applicable thereto, if the Merger is completed, regardless of the outcome of the advisory vote.

The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote on the matter is required to approve the Merger Compensation Proposal.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 4 TO APPROVE THE MERGER COMPENSATION PROPOSAL.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy statement/prospectus to vote shares "**FOR**" the approval of the Merger Compensation Proposal.

PROPOSAL NO. 5: APPROVAL OF THE 2024 STOCK OPTION AND INCENTIVE PLAN

Overview

As discussed in this proxy statement/prospectus, Homology is asking its stockholders to consider and vote upon a proposal to approve and adopt the Q32 Inc. 2024 Stock Option and Incentive Plan, or the 2024 Plan, a copy of which is attached to this proxy statement/prospectus as *Annex I*, or the Stock Option and Incentive Plan Proposal.

The 2024 Plan is intended to replace the Q32 2017 Stock Option Plan and Grant Plan, or the Q32 2017 Plan, as well as the Homology 2015 Stock Incentive Plan, or the Homology 2015 Plan, and the Homology 2018 Plan, or, together with the Homology 2015 Plan, the Homology Incentive Plans. If the 2024 Plan becomes effective, then no additional awards will be granted under the Q32 2017 Plan as in effect immediately prior to the closing date of the Merger or the Homology Incentive Plans, although all outstanding stock awards granted under the Q32 2017 Plan as in effect immediately prior to the closing of the Merger will be assumed and converted into stock awards of the combined company and will remain subject to the terms and conditions of the agreements evidencing such awards and the terms of the Q32 2017 Plan. Each Homology restricted stock unit award that is outstanding immediately prior to the Effective Time will be accelerated in full immediately prior to the Effective Time. In addition, all outstanding and unvested options to purchase Homology common stock shall vest in full in accordance with the terms of the Merger Agreement and remain outstanding following the Effective Time, provided that any such Homology options that have an exercise price equal to or greater than the closing trading price of a share of Homology Common Stock on the last full trading day on which the Homology Common Stock is traded prior to the Effective Time shall be cancelled for no consideration.

Reasons to Approve the 2024 Plan

The purpose of the 2024 Plan is to enhance the ability of the combined company to attract, retain and incentivize employees, independent contractors and directors and promote the success of its business. Equity compensation can play an important role in the success of the combined company by encouraging and enabling employees, independent contractors and directors, upon whose judgment, initiative and efforts the combined company largely depends for the successful conduct of its business, to acquire a proprietary interest in the combined company. Accordingly, the ability to grant stock awards at competitive levels will be a vital element of the combined company's compensation program and is, therefore, in the best interest of the combined company and its stockholders. If Homology's stockholders do not approve the 2024 Plan, the Homology Incentive Plans will remain in effect in accordance with their terms. In such event, the combined company's board of directors may consider whether to adopt alternative arrangements based on its assessment of the combined company's needs. Without stockholder approval of the 2024 Plan, the combined company could be limited in its ability to offer a competitive equity compensation program to attract, retain and motivate the talented and qualified employees necessary for the continued growth and success of the combined company, especially in an industry that increasingly relies on equity compensation as a key component of overall employee compensation.

Approval of the 2024 Plan by Homology's stockholders is required, among other things, in order to comply with stock exchange rules requiring stockholder approval of equity compensation plans and allow the grant of incentive stock options under the 2024 Plan. If the 2024 Plan is approved by Homology's stockholders, the 2024 Plan will become effective as of the Effective Time and the combined company will register the necessary shares of its common stock on a Registration Statement on Form S-8.

A total of 51,117,985 shares (before giving effect to the proposed Reverse Stock Split) will initially be reserved for issuance under the 2024 Plan. As of February 5, 2024, the closing price on Nasdaq per share of Homology common stock was $0.702. Based upon a price per share of $0.702, the maximum aggregate market value that could potentially be issued under the 2024 Plan at the Effective Time is $35,884,825.47. The Homology board of directors approved the 2024 Plan on February 11, 2024, subject to the approval by Homology's stockholders and effective as of the Effective Time. If the closing of the Merger does not occur or the 2024 Plan is not approved by Homology's

stockholders, the 2024 Plan will not become effective and no stock awards will be granted thereunder, and the Homology Incentive Plans will remain in full force and effect and available for the grant of stock awards thereunder (subject to the terms of the plans).

The following is a summary of the material features of the 2024 Plan. This summary is qualified in its entirety by the full text of the 2024 Plan, a copy of which is included as *Annex I* to this proxy statement/prospectus.

Summary of the Material Provisions of the Q32 Inc. 2024 Stock Option and Incentive Plan

The 2024 Plan is intended to allow the combined company to make equity and equity-based incentive awards to officers, employees, directors and consultants. The combined company anticipates that providing such persons with a direct stake in the combined company will assure a closer alignment of the interests of such individuals with those of the combined company and its stockholders, thereby stimulating their efforts on the combined company's behalf and strengthening their desire to remain with the combined company.

The initial maximum aggregate number of shares that may be issued under the 2024 Plan is 51,117,985 shares (before giving effect to the proposed Reverse Stock Split), or the Initial Limit. The 2024 Plan provides that the number of shares initially reserved and available for issuance under the 2024 Plan will automatically increase each January 1, beginning on January 1, 2025, by 5% of the outstanding number of shares on the immediately preceding December 31, or such lesser amount as determined by the plan administrator, or the Annual Increase. This limit is subject to adjustment in the event of a reorganization, recapitalization, reclassification, stock split, stock dividend, reverse stock split or other similar change in the combined company's capitalization. The maximum aggregate number of shares that may be issued upon exercise of incentive stock options under the 2024 Plan shall not exceed the Initial Limit cumulatively increased on January 1, 2025 and on each January 1 thereafter by the lesser of the Annual Increase or 51,117,985 shares (before giving effect to the proposed Reverse Stock Split). Shares underlying any awards under the 2024 Plan and the shares underlying awards under the Q32 2017 Plan or Homology Incentive Plans that are forfeited, canceled, held back upon exercise of an option or settlement of an award to cover the exercise price or tax withholding, reacquired by the combined company prior to vesting, satisfied without the issuance of stock or otherwise terminated (other than by exercise) shall be added back to the shares available for issuance under the 2024 Plan and, to the extent permitted under Section 422 of the Code and the regulations promulgated thereunder, the shares that may be issued as incentive stock options. Awards that may be settled solely in cash will not be counted against the shares available for issuance under the 2024 Plan and will not reduce the shares authorized for grant to a grantee in any calendar year.

The 2024 Plan contains a limitation whereby the value of all awards under the 2024 Plan and all other cash compensation paid to any non-employee director for services as a non-employee director may not exceed $750,000 in any calendar year; provided, however, that such amount will be $1,000,000 for the first calendar year a non-employee director is initially appointed to the combined company's board of directors.

The 2024 Plan will be administered by the combined company's board of directors, the compensation committee of the combined company's board of directors or such other similar committee pursuant to the terms of the 2024 Plan. The plan administrator, which initially will be the compensation committee of the combined company's board of directors, will have full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2024 Plan. The plan administrator may delegate to a committee consisting of one or more officers the authority to grant stock options and other awards to employees who are not subject to the reporting and other provisions of Section 16 of the Exchange Act and not members of the delegated committee, subject to certain limitations and guidelines. Persons eligible to participate in the 2024 Plan will be officers, employees, non-employee directors and consultants of the combined company as selected from time to time by the plan administrator in its discretion.

Immediately following completion of the Merger, the combined company is expected to have a total of approximately 40 employees, five consultants and eight non-employee directors who will be eligible to be granted stock awards from the 2024 Plan.

The 2024 Plan permits the granting of both options to purchase shares intended to qualify as incentive stock options under Section 422 of the Code and options that do not so qualify. Options granted under the 2024 Plan will be non-qualified options if they fail to qualify as incentive stock options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of the combined company and its subsidiaries. Non-qualified options may be granted to any persons eligible to receive awards under the 2024 Plan. The option exercise price of each option will be determined by the plan administrator but generally may not be less than 100% of the fair market value of the combined company's share on the date of grant or, in the case of an incentive stock option granted to a 10% stockholder, 110% of such share's fair market value. The term of each option will be fixed by the plan administrator and may not exceed ten years from the date of grant or, in the case of an incentive stock option granted to a ten percent stockholder, five years from the date of grant. The plan administrator will determine at what time or times each option will vest and may be exercised, including the ability to accelerate the vesting of such options.

Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the plan administrator or by delivery (or attestation to the ownership) of shares that are beneficially owned by the optionee free of restrictions or were purchased in the open market. Subject to applicable law, the exercise price may also be delivered by a broker pursuant to irrevocable instructions to the broker from the optionee. In addition, the plan administrator may permit non-qualified options to be exercised using a "net exercise" arrangement that reduces the number of shares issued to the optionee by the largest whole number of shares with fair market value that does not exceed the aggregate exercise price.

The plan administrator may award stock appreciation rights subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares or cash, equal to the value of the appreciation in the combined company's stock price over the exercise price. The exercise price generally may not be less than 100% of the fair market value of the combined company's share on the date of grant. The term of each stock appreciation right will be fixed by the plan administrator and may not exceed ten years from the date of grant. The plan administrator will determine at what time or times each stock appreciation right will vest and may be exercised, including the ability to accelerate the vesting of such stock appreciation right.

The plan administrator may award restricted shares and restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the combined company through a specified vesting period. The plan administrator may also grant shares that are free from any restrictions under the 2024 Plan. Unrestricted stock may be granted to participants in recognition of past services or for other valid consideration and may be issued in lieu of cash compensation due to such participant. The plan administrator may grant dividend equivalent rights to participants that entitle the recipient to receive credits for dividends that would be paid if the recipient had held a specified number of shares.

The plan administrator may grant cash-based awards under the 2024 Plan to participants.

The 2024 Plan requires the plan administrator to make appropriate adjustments to the number of shares of common stock that are subject to the 2024 Plan, to certain limits in the 2024 Plan, and to any outstanding awards to reflect stock dividends, stock splits, extraordinary cash dividends and similar events.

The 2024 Plan provides that upon the effectiveness of a "sale event," as defined in the 2024 Plan, an acquirer or successor entity may assume, continue or substitute for the outstanding awards under the 2024 Plan. To the extent that awards granted under the 2024 Plan are not assumed, continued or substituted by the successor entity, all awards granted under the 2024 Plan shall terminate. In addition, except as may be otherwise provided

in the relevant award agreement, all stock options and stock appreciation rights with time-based vesting conditions or restrictions that are not vested and/or exercisable immediately prior to the effective time of the sale event shall become fully vested and exercisable as of the effective time of the sale event, all other awards with time-based vesting conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the sale event, and all awards with conditions and restrictions relating to the attainment of performance goals shall become vested and nonforfeitable in connection with a sale event at the greater of (A) target levels or (B) actual performance. In the event of such termination, individuals holding options and stock appreciation rights will, for each such award, either (a) receive a payment in cash or in kind for each share subject to such award that is exercisable in an amount equal to the per share cash consideration payable to stockholders in the sale event less the applicable per share exercise price (provided that, in the case of an option or stock appreciation right with an exercise price equal to or greater than the per share cash consideration payable to stockholders in the sale event, such option or stock appreciation right shall be cancelled for no consideration) or (b) be permitted to exercise such options and stock appreciation rights (to the extent exercisable) within a specified period of time prior to the sale event. The plan administrator shall also have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding other awards in an amount equal to the per share cash consideration payable to stockholders in the sale event multiplied by the number of vested shares under such awards.

Participants in the 2024 Plan are responsible for the payment of any federal, state or local taxes that the combined company is required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. The plan administrator may cause any tax withholding obligation of the combined company to be satisfied, in whole or in part, by the combined company withholding from shares to be issued pursuant to an award a number of shares with an aggregate fair market value that would satisfy the withholding amount due. The plan administrator may also require any tax withholding obligation of the combined company to be satisfied, in whole or in part, by an arrangement whereby a certain number of shares issued pursuant to any award are immediately sold and proceeds from such sale are remitted to the combined company in an amount that would satisfy the withholding amount due.

The 2024 Plan generally does not allow for the transfer or assignment of awards, other than by will or by the laws of descent and distribution or pursuant to a domestic relations order; however, the plan administrator may permit the transfer of non-qualified stock options by gift to an immediate family member, to trusts for the benefit of family members, or to partnerships in which such family members are the only partners. All awards will be subject to any combined company clawback policy as set forth in such clawback policy or the applicable award agreement.

The plan administrator may amend or discontinue the 2024 Plan and the plan administrator may amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose, but no such action may materially and adversely affect rights under an award without the holder's consent. The plan administrator is specifically authorized to reduce the exercise price of outstanding options or stock appreciation rights, effect the repricing of such awards through cancellation and re-grants or cancel such awards in exchange for cash or other awards without prior stockholder approval. Certain amendments to the 2024 Plan require the approval of the combined company's stockholders.

No awards may be granted under the 2024 Plan after the date that is ten years from the Effective Time. No awards under the 2024 Plan have been made prior to the date hereof.

Form S-8

Following the consummation of the Merger, the combined company will file with the SEC a registration statement on Form S-8 covering the shares issuable under the 2024 Plan.

Certain U.S. Federal Income Tax Consequences

The following is a summary of the principal U.S. federal income tax consequences of certain transactions under the 2024 Plan. It does not describe all federal tax consequences under the 2024 Plan, nor does it describe state or local tax consequences.

Incentive Stock Options. No taxable income is generally recognized by the optionee upon the grant or exercise of an incentive stock option. If shares issued to an optionee pursuant to the exercise of an incentive stock option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then generally (i) upon sale of such shares, any amount realized in excess of the option exercise price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (ii) the combined company will not be entitled to any deduction for federal income tax purposes; provided that such incentive stock option otherwise meets all of the technical requirements of an incentive stock option. The exercise of an incentive stock option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares acquired upon the exercise of an incentive stock option are disposed of prior to the expiration of the two-year and one-year holding periods described above (a "disqualifying disposition"), generally (i) the optionee will recognize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares at exercise (or, if less, the amount realized on a sale of such shares) over the option price thereof, and (ii) the combined company will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive stock option is paid by tendering shares.

If an incentive stock option is exercised at a time when it no longer qualifies for the tax treatment described above, the option is treated as a non-qualified option. Generally, an incentive stock option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

No income is generally recognized by the optionee at the time a non-qualified option is granted. Generally (i) at exercise, ordinary income is recognized by the optionee in an amount equal to the difference between the option exercise price and the fair market value of the shares on the date of exercise, and the combined company will receive a tax deduction for the same amount, and (ii) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares have been held. Special rules will apply where all or a portion of the exercise price of the non-qualified option is paid by tendering shares. Upon exercise, the optionee will also be subject to social security taxes on the excess of the fair market value over the exercise price of the option.

All Other Awards. For all other awards under the 2024 Plan, the combined company generally will be entitled to a tax deduction in connection with other awards under the 2024 Plan in an amount equal to the ordinary income recognized by the participant at the time the participant recognizes such income. Participants typically are subject to income tax and recognize such tax at the time that an award is exercised, vests or becomes non-forfeitable, unless the award provides for deferred settlement.

Section 162(m) of the Code limits the deduction certain employers may take for otherwise deductible compensation payable to certain executive officers of the employer to the extent the compensation paid to such an officer for the year exceeds $1 million.

The vesting of any portion of an award that is accelerated due to the occurrence of a change in control (such as a sale event) may cause all or a portion of the payments with respect to such accelerated awards to be treated as "excess parachute payments" as defined in Section 280G of the Code. Any such excess parachute payments may be non-deductible to the combined company, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

Application of Section 409A of the Code

Section 409A of the Code imposes an additional 20% tax and interest on an individual receiving nonqualified deferred compensation under a plan that fails to satisfy certain requirements. For purposes of Section 409A, "nonqualified deferred compensation" includes equity-based incentive programs, including some stock options, stock appreciation rights and restricted stock units. Generally speaking, Section 409A does not apply to incentive stock options, and non-discounted non-qualified stock options and stock appreciation rights if no deferral is provided beyond exercise, or restricted stock.

The awards made pursuant to the 2024 Plan are expected to be designed in a manner intended to comply with the requirements of Section 409A of the Code such that no adverse tax consequences under Section 409A apply to the extent the awards granted under the 2024 Plan are not exempt from coverage. However, if the 2024 Plan fails to comply with Section 409A in operation, a participant could be subject to the additional taxes and interest.

State, local and foreign tax consequences may in some cases differ from the U.S. federal income tax consequences described above. The aforementioned summary of the U.S. federal income tax consequences in respect of the 2024 Plan is for general information only.

Interested parties should consult their own advisors as to specific tax consequences of their awards. The 2024 Plan is not subject to the Employee Retirement Income Security Act of 1974, as amended, and is not intended to be qualified under Section 401(a) of the Code.

New Plan Benefits

No awards have been previously granted under the 2024 Plan and no awards have been granted that are contingent on stockholder approval of the 2024 Plan. The awards that are to be granted to any participant or group of participants are indeterminable at the date of this proxy statement/prospectus because participation and the types of awards that may be granted under the 2024 Plan are subject to the discretion of the plan administrator. Consequently, no new plan benefits table is included in this proxy statement/prospectus.

Interests of Certain Persons in this Proposal

The existence of financial and personal interests of one or more of Homology's directors may result in a conflict of interest on the part of such director(s) between what he or she may believe is in the best interests of Homology and its stockholders and what he or she may believe is best for himself or herself in determining to recommend that stockholders vote for the proposals. In addition, Homology's officers have interests in the Merger that may conflict with the interests of Homology's stockholders. See the section entitled "*The Merger—Interests of Homology Directors and Executive Officers in the Merger*" for a further discussion of these considerations.

Equity Compensation Plan Information

The following table sets forth information as of December 31, 2023 regarding shares of common stock that may be used under Homology's equity compensation plans.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))[4] (c)
Equity compensation plans approved by security holders[1]	9,892,380[2]	$ 9.26[3]	7,671,994
Equity compensation plans not approved by security holders	—	—	—
Total	9,892,380	$ 9.26	7,671,994

(1) Consists of the 2015 Stock Incentive Plan, as amended, or the 2015 Plan, the 2018 Incentive Award Plan, or the 2018 Plan, and the 2018 Employee Stock Purchase Plan, or the 2018 ESPP.

(2) Includes 1,431,310 outstanding options to purchase stock under the 2015 Plan, 8,119,731 outstanding options to purchase stock under the 2018 Plan and 341,339 outstanding restricted stock units under the 2018 Plan.

(3) As of December 31, 2023, the weighted-average exercise price of outstanding options under the 2015 Plan was $4.02 and the weighted-average exercise price of outstanding options under the 2018 Plan was $10.18. This amount does not take into account restricted stock units, which have no exercise price.

(4) Includes 4,978,083 shares available for future issuance under the 2018 Plan and 2,693,911 shares available for future issuance under the 2018 ESPP. As of March 26, 2018, in connection with Homology's initial public offering, no further grants are made under the 2015 Plan. The 2018 Plan provides for an annual increase on the first day of each calendar year beginning on January 1, 2019 and ending on and including January 1, 2028, by an amount equal to the lesser of (i) 4% of the aggregate number of shares of common stock outstanding on the final day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as determined by Homology's board of directors (but no more than 20,887,347 shares may be issued upon the exercise of incentive stock options), plus any shares that were subject to awards outstanding under the 2015 Plan as of the effective date of the 2018 Plan which are forfeited, expire, lapse for any reason or are settled for cash without the issuance of shares. The 2018 ESPP provides for an annual increase on the first day of each calendar year beginning on January 1, 2019 and ending on and including January 1, 2028, by an amount equal to the lesser of (i) 1% of the aggregate number of shares of common stock outstanding on the final day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as is determined by Homology's board of directors, provided that no more than 4,778,738 shares of our common stock may be issued under the 2018 ESPP.

Required Vote

The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote on the matter is required to approve the Stock Option and Incentive Plan Proposal.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 5 TO APPROVE THE 2024 STOCK OPTION AND INCENTIVE PLAN.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy statement/prospectus to vote shares "**FOR**" the approval of the Stock Option and Incentive Plan Proposal.

PROPOSAL NO. 6: APPROVAL OF THE 2024 EMPLOYEE STOCK PURCHASE PLAN

Overview

As discussed in this proxy statement/prospectus, Homology is asking its stockholders to consider and vote upon a proposal to approve the Q32 Inc. 2024 Employee Stock Purchase Plan, or the 2024 ESPP, a copy of which is attached to this proxy statement/prospectus as *Annex J*, or the ESPP Proposal.

If the 2024 ESPP becomes effective, then no additional awards will be granted under the Homology 2018 Employee Stock Purchase Plan, or the Homology ESPP. If the 2024 ESPP does not become effective, the Homology ESPP will remain in full force and effect and available for the grant of awards thereunder.

Reasons to Approve the 2024 ESPP

The purpose of the 2024 ESPP is to provide employees of the combined company with an opportunity to acquire shares, which will enable the combined company to attract, retain and motivate valued employees. Approval of the 2024 ESPP by Homology's stockholders is required, among other things, in order to comply with stock exchange rules requiring stockholder approval of equity compensation plans. A component of the 2024 ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Code. If the 2024 ESPP is approved by Homology's stockholders, the 2024 ESPP will become effective as of the Effective Time and the combined company will register the necessary shares of its common stock on a Registration Statement on Form S-8.

A total of 2,175,095 shares (before giving effect to the proposed Reverse Stock Split) will initially be reserved for issuance under the 2024 ESPP. As of February 5, 2024, the closing price on Nasdaq per share of Homology common stock was $0.702. Based upon a price per share of $0.702, the maximum aggregate market value that could potentially be issued under the 2024 ESPP at the Effective Time is $1,526,916.69. The Homology board of directors approved the 2024 ESPP on February 11, 2024, subject to approval by Homology's stockholders. If the 2024 ESPP is approved by Homology's stockholders, the 2024 ESPP will become effective at the Effective Time.

The following is a summary of the material features of the 2024 ESPP. This summary is qualified in its entirety by the full text of the 2024 ESPP, a copy of which is included as *Annex J* to this proxy statement/prospectus.

Summary of the Material Provisions of the 2024 ESPP

An aggregate of 2,175,095 shares (before giving effect to the proposed Reverse Stock Split), or the Initial Reserve, will initially be reserved and available for issuance under the 2024 ESPP. The 2024 ESPP provides that the number of shares initially reserved and available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2025, by the lesser of a number of shares equal to 4,350,190, 1% of the outstanding number of shares on the immediately preceding December 31, or such lesser amount as determined by the plan administrator. If the combined company's capital structure changes because of a stock dividend, stock split or similar event, the number of shares that can be issued under the 2024 ESPP will be appropriately adjusted.

The 2024 ESPP will be administered by the person or persons appointed by the combined company's board of directors. Initially, the compensation committee of the combined company's board of directors will administer the plan and will have full authority to make, administer and interpret such rules and regulations regarding the 2024 ESPP as it deems advisable.

Any employee of the combined company or one of its subsidiaries that has been designated to participate in the 2024 ESPP is eligible to participate in the 2024 ESPP so long as the employee is customarily employed for more than 20 hours a week. No person who owns or holds, or as a result of participation in the 2024 ESPP would

own or hold, shares or options to purchase shares, that together equal to 5% or more of total combined voting power or value of all classes of stock of the combined company or any parent or subsidiary is entitled to participate in the 2024 ESPP. No employee may exercise an option granted under the 2024 ESPP that permits the employee to purchase shares having a value of more than $25,000 (determined using the fair market value of the stock at the time such option is granted) in any calendar year.

Participation in the 2024 ESPP is limited to eligible employees who authorize payroll deductions equal to a whole percentage of base pay to the 2024 ESPP. Employees may authorize payroll deductions, with a minimum of 1% of base pay and a maximum of 15% of base pay.

Immediately following completion of the Merger, the combined company is expected to have a total of approximately 40 employees who will be eligible participate the 2024 ESPP. Once an employee becomes a participant in the 2024 ESPP, that employee will automatically participate in successive offering periods, as described below, until such time as that employee withdraws from the 2024 ESPP, becomes ineligible to participate in the 2024 ESPP, or his or her employment ceases.

The combined company may make one or more offerings under the 2024 ESPP, consisting of one or more purchase periods, for employees to purchase shares under the 2024 ESPP, which is referred to as an "offering period." The plan administrator may, in its discretion, determine when each offering shall occur, including the duration of any offering period; provided, that no offering period will exceed 27 months in duration. Shares are purchased on the last day of each purchase period or if such purchase period is the last purchase period of the offering period, the last day of such offering period, with that day being referred to as an "exercise date." Unless otherwise determined by the plan administrator, participants will only be permitted to participate in one offering at a time.

On the first day of an offering period, employees participating in that offering period will be granted an option to purchase shares. On the exercise date of each purchase period, the employee is deemed to have exercised the option, at the exercise price, for the lowest of (i) a number of shares determined by dividing such employee's accumulated payroll deductions or contributions on such exercise date by the exercise price; (ii) a number of shares determined by dividing $25,000 by the fair market value per share on the first day of the offering period; or (iii) such lesser number as established by the plan administrator in advance of the offering. The exercise price is equal to the lesser of (i) 85% the fair market value per share on the first day of the offering period or (ii) 85% of the fair market value per share on the exercise date. The maximum number of shares that may be issued to any employee under the 2024 ESPP in a calendar year is a number of shares determined by dividing $25,000, valued at the start of the offering period, or such other lesser number of shares as determined by the plan administrator from time to time.

In general, if an employee is no longer a participant on an exercise date, the employee's option will be automatically terminated, and the amount of the employee's accumulated payroll deductions will be refunded.

Except as may be permitted by the plan administrator in advance of an offering, a participant may not increase or decrease the amount of his or her payroll deductions during any offering period but may increase or decrease his or her payroll deduction with respect to the next offering period by filing a new enrollment form at least 15 business days before the first day of such offering period, or such other deadline established by the plan administrator. A participant may withdraw from an offering period at any time without affecting his or her eligibility to participate in future offering periods. If a participant withdraws from an offering period, that participant may not again participate in the same offering period, but may enroll in subsequent offering periods. An employee's withdrawal will be effective as of the next business day following the date that the plan administrator receives the employee's written notice of withdrawal under the 2024 ESPP.

In the case of and subject to the consummation of a "sale event," the plan administrator, in its discretion, and on such terms and conditions as it deems appropriate, is hereby authorized to take any one or more of the

following actions under the 2024 ESPP or with respect to any right under the 2024 ESPP or to facilitate such transactions or events: (a) to provide for either (i) termination of any outstanding option in exchange for an amount of cash, if any, equal to the amount that would have been obtained upon the exercise of such option had such option been currently exercisable or (ii) the replacement of such outstanding option with other options or property selected by the plan administrator in its sole discretion; (b) to provide that the outstanding options under the 2024 ESPP shall be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for similar options covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and prices; (c) to make adjustments in the number and type of shares (or other securities or property) subject to outstanding options under the 2024 ESPP and/or in the terms and conditions of outstanding options and options that may be granted in the future; (d) to provide that the offering with respect to which an option relates will be shortened by setting a new exercise date on which such offering will end; and (e) to provide that all outstanding options shall terminate without being exercised and all amounts in the accounts of participants shall be promptly refunded.

The 2024 ESPP will automatically terminate on the 10-year anniversary of the Effective Time. The combined company's board of directors may, in its discretion, at any time, terminate or amend the 2024 ESPP.

Form S-8

Following the Effective Time and subject to the approval of the 2024 ESPP by Homology's stockholders, the combined company will file with the SEC a registration statement on Form S-8 covering the shares issuable under the 2024 ESPP.

Certain U.S. Federal Income Tax Consequences

The following is only a summary of the effect of the U.S. income tax laws and regulations upon an employee and the combined company with respect to an employee's participation in the 2024 ESPP. This summary does not purport to be a complete description of all federal tax implications of participation in the 2024 ESPP, nor does it discuss the income tax laws of any municipality, state or foreign country in which a participant may reside or otherwise be subject to tax.

A participant in the 2024 ESPP generally recognizes no taxable income either as a result of participation in the 2024 ESPP or upon exercise of an option to purchase shares under the terms of the 2024 ESPP.

If a participant disposes of shares purchased upon exercise of an option granted under the 2024 ESPP within two years from the first day of the applicable offering period or within one year from the exercise date, which is referred to as a "disqualifying disposition," the participant will generally recognize ordinary income in the year of that disposition equal to the amount by which the fair market value of the shares on the date the shares were purchased exceeds the purchase price. The amount of ordinary income will be added to the participant's basis in the shares, and any additional gain or resulting loss recognized on the disposition of the shares will be a capital gain or loss. A capital gain or loss will generally be long-term if the participant's holding period is more than 12 months, or short-term if the participant's holding period is 12 months or less.

If the participant disposes of shares purchased upon exercise of an option granted under the 2024 ESPP at least two years after the first day of the applicable offering period and at least one year after the exercise date, the participant will recognize ordinary income in the year of disposition equal to the lesser of (1) the excess of the fair market value of the shares at the time the option was granted over the amount paid and (2) the excess of the amount actually received for the shares over the amount paid. The amount of any ordinary income will be added to the participant's basis in the shares, and any additional gain recognized upon the disposition after that basis adjustment will be a long-term capital gain. If the fair market value of the shares on the date of disposition is less than the exercise price, there will be no ordinary income and any loss recognized will be a long-term capital loss.

The combined company is generally entitled to a tax deduction in the year of a disqualifying disposition equal to the amount of ordinary income recognized by the participant as a result of that disposition. In all other cases, the combined company is not allowed a deduction.

New Plan Benefits

Because participation in the 2024 ESPP is voluntary, the benefits or amounts that will be received by or allocated to any individual or group of individuals under the 2024 ESPP in the future are not determinable and no awards have been granted that are contingent on stockholder approval of the 2024 ESPP.

Interests of Certain Persons in this Proposal

The existence of financial and personal interests of one or more of Homology's directors may result in a conflict of interest on the part of such director(s) between what he or she may believe is in the best interests of Homology and its stockholders and what he or she may believe is best for himself or herself in determining to recommend that stockholders vote for the proposals. In addition, Homology's officers have interests in the Merger that may conflict with the interests of Homology's stockholders. See the section entitled "The Merger—Interests of Homology Directors and Executive Officers in the Merger" for a further discussion of these considerations.

Required Vote

The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively at the Homology Special Meeting by the holders entitled to vote on the matter is required to approve the ESPP Proposal.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 6 TO APPROVE THE 2024 EMPLOYEE STOCK PURCHASE PLAN.

Unless otherwise instructed, it is the intention of the persons named in the accompanying proxy statement/ prospectus to vote shares "**FOR**" the approval of the ESPP Proposal.

PROPOSAL NO. 7: APPROVAL OF ADJOURNMENT OF THE HOMOLOGY SPECIAL MEETING

If Homology fails to receive a sufficient number of votes to approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal, Homology may propose to adjourn the Homology Special Meeting, for a period of not more than 30 days, for the purpose of soliciting additional proxies to approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal. Homology currently does not intend to propose adjournment at the Homology Special Meeting if there are sufficient votes to approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

Required Vote

The affirmative vote of a majority in voting power of the votes cast affirmatively or negatively in attendance or represented by proxy at the Homology Special Meeting and entitled to vote on the matter is required to approve the adjournment of the Homology Special Meeting for the purpose of soliciting additional proxies to approve the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

HOMOLOGY'S BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THIS PROPOSAL NO. 7 TO ADJOURN THE HOMOLOGY SPECIAL MEETING, IF NECESSARY, TO SOLICIT ADDITIONAL PROXIES IF THERE ARE NOT SUFFICIENT VOTES IN FAVOR OF THE STOCK ISSUANCE PROPOSAL, THE AUTHORIZED SHARE INCREASE PROPOSAL AND THE REVERSE STOCK SPLIT PROPOSAL.

Unless otherwise instructed, it is the intention of the persons named in this proxy statement/prospectus to vote shares "**FOR**" the ratification to adjourn the Homology Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Stock Issuance Proposal, the Authorized Share Increase Proposal and the Reverse Stock Split Proposal.

HOMOLOGY'S BUSINESS

Overview

Homology is a clinical-stage genetic medicines company historically focused on transforming the lives of patients suffering from rare genetic diseases with significant unmet medical needs by addressing the underlying cause of the disease. Homology's proprietary platform is designed to utilize its human hematopoietic stem cell-derived adeno-associated virus vectors, or AAVHSCs, to precisely and efficiently deliver single administration genetic medicines *in vivo* through a nuclease-free gene editing modality, gene therapy, or gene therapy to express antibodies platform, or GTx-mAb, which is designed to produce antibodies throughout the body.

In July 2023, Homology completed a review of its business and its Board of Directors approved a plan to explore, review and evaluate a range of potential strategic options available to it, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Based on the financing environment and the anticipated clinical development timeline for its lead program, HMI-103, Homology stopped further development of its programs and reduced its workforce by 86% to significantly reduce its ongoing operating costs as it evaluated strategic alternatives.

After a comprehensive review of strategic alternatives, on November 16, 2023, Homology entered into an Agreement and Plan of Merger, or the Merger Agreement, with Q32 Bio Inc., a Delaware corporation, or Q32, and Kenobi Merger Sub, Inc., a Delaware corporation and Homology's direct, wholly owned subsidiary, or Merger Sub, pursuant to which, among other matters, and subject to the satisfaction or waiver of the conditions set forth in the Merger Agreement, Merger Sub will merge with and into Q32, with Q32 continuing as Homology's wholly owned subsidiary and the surviving corporation of the merger, or the Merger. Homology's future operations are highly dependent on the success of the Merger and there can be no assurance that the Merger will be successfully consummated. If the Merger is completed, the business of Q32 will continue as the business of the combined company.

Homology's former clinical programs include: HMI-103, an investigational gene editing candidate for the treatment of patients with phenylketonuria, or PKU, HMI-203, an investigational gene therapy candidate for the treatment of patients with mucopolysaccharidosis type II (MPS II), or Hunter syndrome, and HMI-102, an investigational gene therapy candidate for the treatment of adult patients with PKU. Homology's former preclinical programs include: HMI-104, a GTx-mAb gene therapy candidate for the treatment of patients with paroxysmal nocturnal hemoglobinuria, or PNH, and HMI-204, a gene therapy candidate for metachromatic leukodystrophy, or MLD. Homology is currently exploring strategic alternatives for HMI-103 (Adult/Pediatric PKU), HMI-204 (MLD) and Homology's Capsids and AAVHSC Platform, including the sale of these programs.

In August 2023, Homology withdrew its Clinical Trial Application, or CTA, for HMI-203 in Canada. In September 2023, Homology withdrew its IND for HMI-102 (Adult PKU), which the FDA formally acknowledged in November 2023. Also in September 2023, Homology requested that the FDA place its HMI-103 (Adult/Pediatric PKU) program on inactive status, which request remains pending. In December 2023, Homology withdrew its IND for HMI-203 (Hunter Syndrome). All clinical trial sites have been notified that all studies conducted by Homology for its programs have been terminated and have been duly notified of their responsibilities. Homology has also withdrawn all orphan drug designations for its programs in both the United States and the EU.

Clinical Programs

In September 2023, Homology inactivated its pheEDIT Phase 1 gene editing clinical trial evaluating HMI-103 in adults with classical PKU (NCT05222178). In October 2023, Homology reported clinical data from the first dose cohort in the pheEDIT trial. As of the data cut-off date of September 14, 2023, HMI-103 was generally well-tolerated in all three participants with no serious adverse events, and the majority of treatment-related adverse events were mild

and transient. All liver function tests remained in the normal range during the prophylactic immunosuppression regimen incorporating the T-cell inhibitor tacrolimus in combination with corticosteroid. Participant 1 experienced a reduction in plasma phenylalanine, or Phe, levels to below the U.S. American College of Medical Genetics and Genomics PKU treatment guideline threshold of <360 µmol/L, and the majority of Phe levels were below 360 mmol/L through 39 weeks post-dose, including after the initiation of dietary protein supplementation. Participant 2 experienced a meaningful plasma Phe reduction of 50% at 23 weeks post-dose. Participant 3 experienced a meaningful plasma Phe reduction of 60% at 14 weeks post-dose.

In August 2023, Homology terminated both its pheNIX Phase 1/2 gene therapy clinical trial evaluating HMI-102 in adults with classical PKU and its juMPStart Phase 1 gene therapy clinical trial evaluating HMI-203 in adults with Hunter Syndrome. INDs for both the pheNIX Phase 1/2 and juMPStart Phase 1 clinical trials have been withdrawn.

Earlier-Stage Product Candidates

Homology completed IND-enabling studies with HMI-202, an investigational gene therapy for the treatment of patients with MLD. Applying the learnings from these IND-enabling studies, in August 2022, Homology announced the details of HMI-204, an optimized, *in vivo*, one-time gene therapy product candidate for the treatment of MLD. Following a single I.V. administration in the MLD murine model, this optimized candidate, which uses one of Homology's proprietary AAVHSC capsids, crossed the blood-brain-barrier to the CNS and reached key peripheral organs involved in MLD. This resulted in expression of human ARSA, or hARSA, levels in multiple brain regions and cell types above the minimum level of enzyme needed to correct the MLD disease phenotype, hARSA activity levels in the brain predictive of functional assay improvements and hARSA activity in the serum. Additionally, these optimizations led to significant improvements in vector yield and superior packaging for the product candidate.

HMI-104 was a candidate for PNH from Homology's GTx-mAb platform. This platform represents an additional way that Homology could potentially leverage its AAVHSCs in an effort to deliver one-time *in vivo* gene therapy to express and secrete antibodies from the liver, which it believes may allow it to target diseases with larger patient populations. In support of this program, Homology generated and presented preclinical data targeting complement protein 5, demonstrating preclinical proof-of-concept in PNH. A single I.V. dose of an AAVHSC GTx-mAb showed expression of full-length antibodies from the liver consistent with levels associated with anti-C5 therapeutics, sustained and robust Immunoglobulin G, or IgG, expression *in vivo* in a humanized murine liver model and a murine NOD-SCID model, and *in vivo* vector-expressed C5 mAb had potent functional activity as shown by an ex vivo hemolysis assay. Additionally, Homology observed sustained expression of C5 mAb in the presence of murine and human neonatal fragment crystallizable (Fc) receptor, or FcRn. Homology completed IND-enabling studies with HMI-104.

Oxford Biomedica (US) LLC Transaction

On March 10, 2022, Homology closed a transaction with Oxford Biomedica (US) LLC (f/k/a Oxford Biomedica Solutions LLC and Roadrunner Solutions LLC), or OXB (US) LLC, Oxford Biomedica (US), Inc., or OXB, and Oxford Biomedica plc, or OXB Parent, and collectively with OXB, Oxford, pursuant to the Equity Securities Purchase Agreement, or the Purchase Agreement, dated as of January 28, 2022, by and among Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development and manufacturing services to biotechnology companies, which Homology refers to as the Oxford Biomedica (US) LLC Transaction, or the OXB (US) LLC Transaction. OXB (US) LLC incorporates Homology's proven 'plug and play' process development and manufacturing platform, as well as its experienced team and high-quality GMP vector production capabilities that was built and operated since 2019.

Pursuant to the terms of the Purchase Agreement and a contribution agreement, or the Contribution Agreement, entered into between Homology and OXB (US) LLC prior to the closing of the OXB (US) LLC

Transaction, or the Closing, Homology agreed to assign and transfer to OXB (US) LLC all of its assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy or gene editing products, but excluding certain assets related to manufacturing or testing of its proprietary AAV vectors, or collectively, the Transferred Assets, in exchange for 175,000 common equity units in OXB (US) LLC, or Units, and OXB (US) LLC assumed from Homology, and agreed to pay, perform and discharge when due, all of Homology's duties, obligations, liabilities, interests and commitments of any kind under, arising out of or relating to the Transferred Assets.

Effective as of the Closing, Homology sold to OXB, and OXB purchased from Homology, 130,000 Units, or the Transferred Units, in exchange for $130.0 million. In connection with the Closing, OXB contributed $50.0 million in cash to OXB (US) LLC in exchange for an additional 50,000 Units. Immediately following the Closing, (i) OXB owned 180,000 Units, representing 80 percent (80%) of the fully diluted equity interests in OXB (US) LLC, and (ii) Homology owned 45,000 Units, representing 20 percent (20%) of the fully diluted equity interests in OXB (US) LLC.

Pursuant to the Amended and Restated Limited Liability Company Agreement of OXB (US) LLC, or the OXB (US) LLC Operating Agreement, which was executed in connection with the Closing, at any time following the three-year anniversary of the Closing, (i) OXB has an option to cause Homology to sell and transfer to OXB, and (ii) Homology has an option to cause OXB to purchase from Homology, in each case all of Homology's equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period, subject to a maximum amount of $74.1 million. Pursuant to the terms of the OXB (US) LLC Operating Agreement, Homology is entitled to designate one director on the board of directors of OXB (US) LLC, currently Paul Alloway, Ph.D., Homology's President and Chief Operating Officer.

Concurrently with the Closing, Homology entered into certain ancillary agreements with OXB (US) LLC including a license and patent management agreement whereby OXB (US) LLC granted certain licenses to Homology, a supply agreement, or the Supply Agreement, for a term of three years which includes certain annual minimum purchase commitments, a lease assignment pursuant to which Homology assigned all of its right, title and interest in, to and under its facility lease to OXB (US) LLC, a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology, as well as several additional ancillary agreements.

Corporate Headquarters Lease

In November 2021, Homology entered into an amendment of its December 2017 lease agreement, or the Lease Amendment, for its corporate headquarters in Bedford, Massachusetts. The Lease Amendment increases the space under lease by approximately 23,011 square feet, or the Expansion Premises, and extends the expiration date of the existing premises under the lease from February 2027 to June 2030. The term with respect to the Expansion Premises commenced on May 1, 2022 and continues for a period of ten years and five months. The term of the Expansion Premises and the existing premises are not coterminous. Annual base rent for the existing premises under the Lease Amendment is approximately $4.7 million beginning on March 1, 2027, and increases by three percent annually; annual base rent for the Expansion Premises is approximately $1.4 million per year and increases by three percent annually. The Lease Amendment allows for tenant improvement allowances not to exceed $6.3 million in the aggregate. Under the terms of the agreement with Oxford, Homology's lease for its corporate headquarters, including the Expansion Premises, has been assigned to OXB (US) LLC with Homology subleasing a portion of lab and office space back from the newly created company until December 31, 2024. Homology was released from being primary obligor under such lease, effective as of October 1, 2023. See Notes 9 and 13 to Homology's unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding Homology's lease agreement.

License Agreements

In April 2016, Homology entered into an exclusive license agreement with City of Hope, or COH, pursuant to which COH granted Homology an exclusive, sublicensable, worldwide license, or the COH License, to certain

AAV vector-related patents and know-how owned by COH to develop, manufacture, use and commercialize products and services covered by such patents and know-how in any and all fields. On August 6, 2021, Homology received notice from COH that Homology did not accomplish at least one of the partnering milestones by the applicable deadline, as set forth in the COH License. This notice does not affect Homology's exclusive license in the field of mammalian therapeutics, including all human therapeutics, associated diagnostics, and target validation, or the Mammalian Therapeutic Field, where Homology retains exclusive rights. Instead, the notice served as written notice that the exclusive license granted pursuant to the COH License in all fields except the Mammalian Therapeutic Field converted from exclusive to non-exclusive effective as of September 20, 2021, which was forty-five days from the receipt of notice. In connection with the conversion, any royalty obligations and sublicensee fees relating to fields outside of the Mammalian Therapeutic Field shall be reduced by a certain percentage. This change to Homology's exclusive worldwide license with COH does not impact any of Homology's therapeutic product development candidates, including HMI-102, HMI-103, HMI-203, HMI-204 and HMI-104.

Financial Overview

Since its inception in 2015 through September 30, 2023, Homology has raised approximately $721 million in aggregate net proceeds through its initial public offering, or IPO, in April 2018, follow-on public offerings of common stock in April 2019 and April 2021, proceeds from the sale of common stock under an "at-the-market" sales agreement, equity investments from pharmaceutical companies, preferred stock financings and Homology's agreement with Oxford. Included in Homology's net proceeds is a $130.0 million up-front cash payment from its agreement with Oxford, $50.0 million from a former collaboration partner, comprised of an up-front payment of $35.0 million and a $15.0 million equity investment, and a $60.0 million equity investment from Pfizer Inc., or Pfizer, through a private placement transaction. Should Homology resume development of one or more of its product candidates, it will require additional capital in order to advance its product candidates through clinical development and commercialization.

Homology's Opportunity in Genetic Medicines

Homology was historically focused on monogenic diseases where the genetic abnormality is known to occur in a single gene. The majority of monogenic diseases harbor thousands of individual mutations within the diseased gene, each resulting in a loss of function. Adding a functional gene to the cell where there is a missing or mutated gene (gene therapy), replacing an entire diseased gene with a whole functional gene (gene editing), or expressing an antibody to address the underlying genetic disease mechanism (GTx-mAb), are the optimal therapeutic approaches for addressing these monogenic disorders. This can be accomplished either through a method of gene therapy called gene transfer in slowly or non-dividing cells, or through a method of gene editing called gene integration in rapidly dividing cells.

The current focus of most nuclease-based gene editing companies is gene knockout, or knocking out a diseased gene to prevent the expression of an undesired protein. Since gene knockout does not result in a fully-corrected gene, this method can only potentially address the minority of monogenic diseases where a diseased protein requires knock-down or inactivation. Homology's HR-driven gene editing approach aims to achieve functional gene integration into the patient's genome and potentially address the majority of monogenic diseases by replacing an entire diseased gene with a whole functional gene. Homology's gene therapy approach, on the other hand, seeks to introduce a functional copy of a defective gene into a patient's own cells, but not incorporate such copy into the patient's genome. This method results in the expression of the therapeutic protein of interest without changing the genome.

DNA Repair Pathways

Human cells harbor two primary independent pathways to maintain the integrity of DNA: homologous recombination, or HR, and non-homologous end joining, or NHEJ, which are described below:

- ***HR*** is a process in which cells repair DNA through highly precise incorporation of correct DNA sequences that are homologous, or matching, to the site of damage. HR has evolved to repair DNA

with high fidelity and avoids the introduction of unwanted mutations at the site of correction. In the late 1990s, researchers discovered that certain AAV vectors delivered long single strands of homologous DNA to specific regions in the genome and induced the HR pathway, but their low efficiency of approximately 1% limited their use as a viable option for *in vivo* therapeutics.

- ***NHEJ*** is a less selective, error-prone process that rapidly joins the ends of broken DNA resulting in a high frequency of insertions or deletions at the break site. The discovery of nuclease-based gene editing technologies provided researchers with novel tools to specifically introduce DNA breaks into the genome. Despite high potential for error, the majority of nuclease-based gene editing approaches primarily utilize the NHEJ pathway.

Homology believes the major limitation of nuclease-based gene editing is the preferential utilization of the error-prone NHEJ pathway instead of the HR pathway. Because of this preference, the greatest utility of nuclease-based gene editing technologies may lie in their ability to knockout genes rather than replace an entire diseased gene in the genome with a whole functional copy. Furthermore, the use of nuclease-based gene editing technologies for insertion of a corrective sequence carries the risk of unwanted mutations from NHEJ including insertions and deletions or opposite orientation insertion of the template DNA, and also requires the separate delivery of both the nuclease and the DNA template to the same location at the same time.

Homology believes the unique characteristics of its genetic medicines platform will allow it to focus on the HR pathway, enabling precise nuclease-free gene integration with improved efficiency and a broader set of disease targets.

Homology's Platform & Approach

In developing a genetic medicine product candidate, Homology's strategy was to choose the AAVHSC that reaches the area(s) of the body needed to address the specific disease Homology was targeting. Homology then designed the product candidate to precisely and efficiently deliver genetic medicines following a one-time I.V. infusion (*in vivo*) using a gene therapy, nuclease-free gene editing, or GTx-mAb modality. Refer to Figure 1 below for a graphical depiction of Homology's platform.

Figure 1. Homology's Genetic Medicines Platform.

Homology's novel AAVHSCs are packaged with either a gene therapy or a gene editing construct. Homology's gene therapy construct includes a functional copy of the gene and a promoter sequence that is designed to enable the gene to be turned on in the cell and ultimately transcribed to express the therapeutic protein of interest without integrating into the genome. Homology's gene editing construct includes lengthy guide sequences, or homology arms, which are designed to enable the specific alignment to the desired genomic location and then, through the natural process of HR, enable correction of the diseased gene in the genome by replacement with a whole functional copy. Homology's GTx-mAb platform is an extension of Homology's gene therapy approach. It is designed to utilize AAVHSCs to deliver therapeutic DNA for heavy chain and light chain antibody proteins that can be delivered to the liver where they form fully functional, full-length Immunoglobulin G (IgG) antibodies and are secreted throughout the body.

While others are working on identifying and testing ways to mitigate the inherent risk in working with nucleases for gene editing, Homology's approach avoids the use of nucleases entirely. By targeting the HR pathway, Homology's proprietary AAVHSCs mitigate the risks of nuclease-based technologies and have the potential to overcome other AAV vector limitations by combining the precision and high fidelity of HR with highly efficient *in vivo* gene integration, which Homology believes is capable of providing potential cures for a wide range of rare genetic diseases. Refer to Figure 2 below for a graphical depiction of how Homology's AAVHSCs are designed to enable each therapeutic modality.

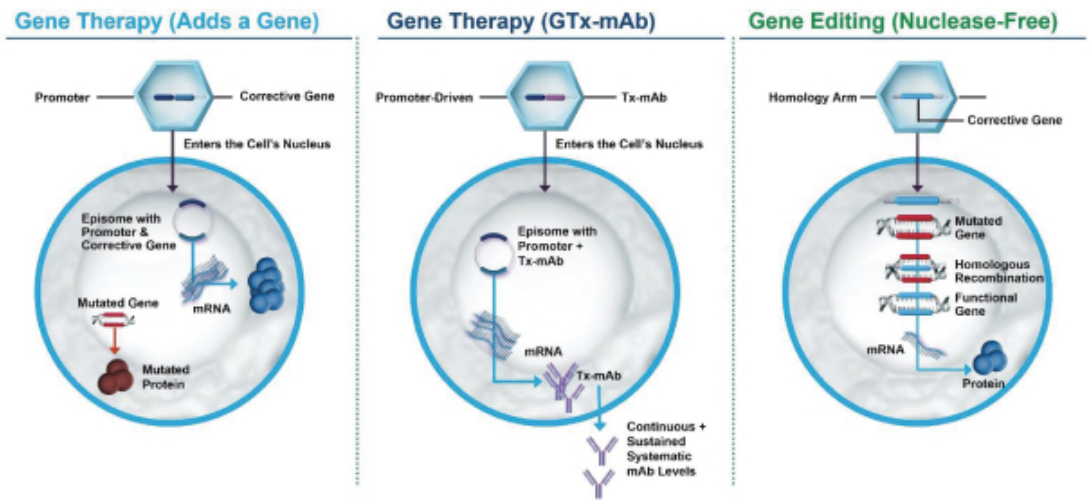


Figure 2. How Homology's AAVHSCs are designed to enable each therapeutic modality.

Homology believes its approach has several key advantages, including:

- ***Homology's proprietary AAVHSC platform enables a nuclease-free gene editing modality, gene therapy, or GTx-mAb.*** Homology's platform provides it the flexibility to deliver genetic medicines through the best suited modality for each disease it pursues based on such factors as the targeted disease biology, the biodistribution of its AAVHSCs to key tissues, and the rate of cell division the tissues exhibit. Homology's AAVHSCs are naturally occurring as they were originally isolated from normal human CD34 cells and have the potential to result in an improved safety profile.
- ***Ability to perform nuclease-free gene editing mediated by HR with gene integration efficiencies that achieve therapeutic ranges.*** Homology's family of 15 novel AAVHSCs are designed to enable it to take advantage of the precise and high-fidelity process of HR-directed gene insertion for nuclease-free gene editing while achieving gene integration efficiencies that Homology believes are in therapeutic ranges and significantly higher than both nuclease-based and other AAV-based approaches. While nuclease-based gene editing technologies have achieved high gene knockout efficiencies in preclinical studies, which is only potentially useful for the minority of monogenic diseases, they have shown limited published evidence of gene integration efficiencies to date.
- ***Ability to introduce an entire gene into the genome or the precise repair of individual mutated nucleotides in addition to gene knockout.*** Homology's HR-based gene editing approach provides the flexibility to introduce an entire copy of a functional gene into the genome also known as gene integration, in addition to repairing single mutations or knocking out entire genes, thus allowing Homology to potentially address the significant majority of monogenic diseases.

- ***High precision and lack of unwanted off-target or on-target DNA modifications.*** Homology's gene editing approach leverages HR, which makes DNA repairs with high fidelity, and enables Homology to precisely perform gene integration without unwanted off- and on-target modifications. Furthermore, Homology is able to directly measure and confirm those modifications throughout the entire genome to ensure only the intended changes are made.
- ***Ability to target multiple tissues.*** In preclinical studies, intravenous administration of Homology's family of AAVHSCs has demonstrated unique biodistribution properties across the serotypes and the ability to target a wide variety of tissues including the liver, CNS, including the ability to cross the blood-brain-barrier, PNS, muscle, bone marrow, eye and heart, enabling Homology to potentially address a broad range of monogenic diseases. The diversity of Homology's AAVHSC library of capsids can also be expanded through targeted shuffling of the capsid sequences.
- **In vivo *administration with a single component delivery system.*** Homology's platform is designed to perform gene editing at high efficiency without the use of a nuclease, enabling Homology to deliver genetic medicines *in vivo* using a single vector system that contains everything required to edit DNA. These characteristics simplify the manufacturing and delivery of Homology's therapeutic candidates relative to existing nuclease-based gene editing approaches.
- ***Ability to target a broad range of patients given low frequency of pre-existing neutralizing antibodies.*** Homology believes its AAVHSCs can target a broad range of patient populations given the low prevalence of pre-existing neutralizing antibodies relative to other AAV vectors.

Homology's Former Pipeline Strategy

Homology initially pursued monogenic diseases where it knew exactly what it was seeking to correct and exactly which gene to insert into patients' cells, including delivery via Homology's GTx-mAb platform to express and secrete antibodies from the liver. Homology prioritized monogenic diseases with significant unmet medical needs, validated regulatory pathways, well-accepted biomarkers and significant commercial opportunities. Homology was formerly focused on developing product candidates to treat monogenic diseases in the liver, CNS and peripheral tissues, bone marrow, and the eye, given that Homology's AAVHSCs naturally show a high degree of tropism or ability to enter cells in these organs and organ systems. These tissues are affected in many rare genetic diseases.

Homology's initial focus areas included developing product candidates for intracellular, inborn errors of metabolism and other genetic conditions that are especially well-suited to correction by its gene editing or gene therapy methods. In slow- or non-dividing cells (e.g., CNS and adult liver cells), gene therapy can potentially be curative, while rapidly dividing cells (e.g., hematopoietic CD34+ cells and pediatric liver cells) require a gene editing approach to provide a permanent correction in the genome that can be replicated with each cell division. Homology was purposefully deploying its proprietary AAVHSCs in certain indications first with a gene therapy approach followed by a gene editing approach, in order to maximize the likelihood of translating its platform into widespread clinical and commercial success.

Homology believes that it has validated its AAVHSC platform in the liver based on the results observed in the dose-escalation portion of its Phase 1/2 trial with HMI-102, and in the first dose cohort of its Phase 1 trial with HMI-103. Homology completed a comprehensive *in vivo* biodistribution study in NHPs in which all 11 of the AAVHSCs tested crossed the blood-brain-barrier and the blood-nerve-barrier.

Homology's Genetic Medicines Platform

Homology's proprietary genetic medicines platform is built on its novel AAVHSCs, which allow Homology to choose the best-suited modality from either a gene therapy, nuclease-free gene editing, or GTx-mAb modality for each disease it pursues, based on such factors as the targeted disease biology, the biodistribution of

Homology's AAVHSCs to key tissues, and the rate of cell division the target tissues exhibit. The unique characteristics of Homology's platform enable nuclease-free gene editing, specifically gene integration, and broad, systemic tissue distribution. Homology's AAVHSCs are designed to directly integrate corrective DNA through HR with therapeutically relevant efficiencies. Homology's HR-based gene editing approach utilizes a single component AAV system that contains everything required to selectively edit DNA with no need for exogenous nucleases or editing machinery. This single-component system simplifies the manufacturing and delivery of Homology's therapeutics. Homology believes its gene editing approach has the potential to be curative as it provides a permanent correction in the genome that is then replicated with each cell division so that new generations of cells will carry the corrected gene. Homology's AAVHSCs are naturally occurring and have been modified to be non-replicating to minimize potential safety issues. Homology believes its platform's combined attributes will allow for more efficient and safer therapeutics for a wide range of genetic diseases.

Homologous Recombination—A Powerful Basis for Gene Editing

Homology's technology is based on the natural DNA repair process of HR and is designed to enable precise and efficient gene integration without an exogenous nuclease.

Homology's genetic medicines platform induces the endogenous HR cellular process using its AAVHSCs to insert replacement or corrective genes into cells that contain mutated or deleterious genes (refer to Figure 3 below). Homology engineers its AAVHSCs to contain long, single-stranded DNA corrective sequences highly specific to the target region in the genome. These single-stranded DNA molecules are then delivered to cells in Homology's AAVHSC vectors, which Homology believes results in precise and efficient gene integration via the HR pathway. The design of Homology's long and specific sequences, up to the 4.7 kilobase packaging limit of Homology's AAVHSCs, is intended to significantly reduce the risk of off-target integration. Based on the packaging size of its AAVHSCs, Homology believes its capsids are capable of accommodating and delivering up to approximately 85% of the genes in the human genome and thus have the ability to address a significant majority of genetic disorders. Homology typically uses homology arms as long as 1,600 base pairs of DNA to target corrective gene sequences into precise regions of the genome, in contrast to the guide sequences used in CRISPR/Cas 9-based gene editing, which are typically less than 30 base pairs in length. Homology also benefits from the ability of its platform to utilize HR to precisely insert gene sequences into the DNA of cells, similar to how mammalian cells repair their own DNA. In order to bring about the excision and subsequent replacement that some forms of gene editing require, those other approaches must combine multiple additional techniques and deliver into the cell the requisite cellular machinery at the right place at the same time, increasing the complexity of the task, introducing the possibility of integrating the wrong DNA due to non-HR-based repair mechanisms, and reducing the likelihood of success.

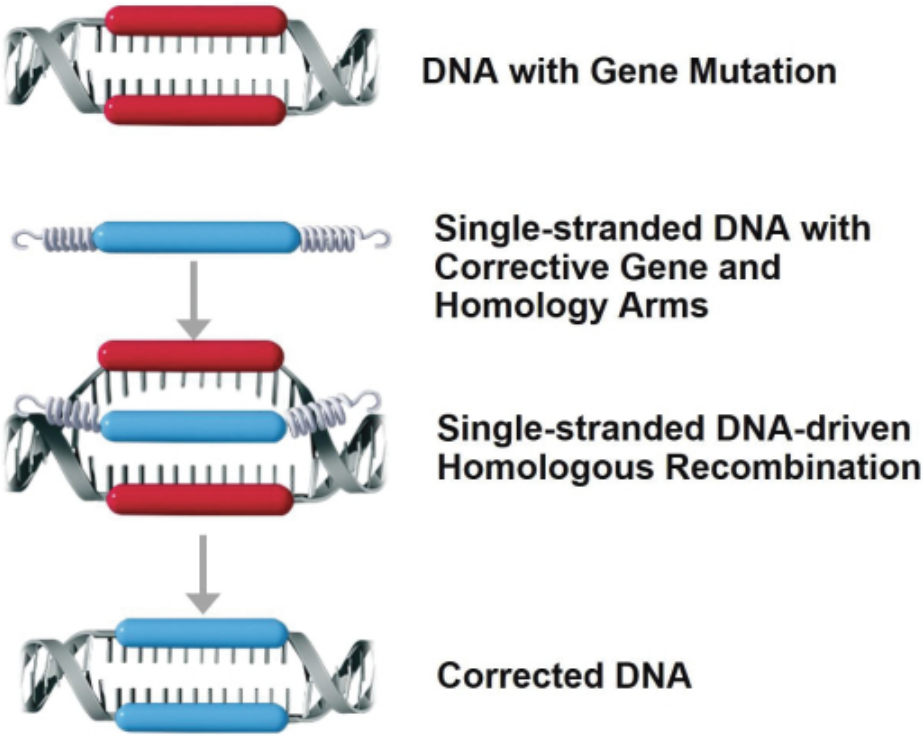


Figure 3. Schematic of homologous recombination.

Homology's Proprietary AAVHSCs

Homology's genetic medicines platform is based on a family of 15 proprietary AAVHSCs which it can deploy with a gene therapy, gene editing or GTx-mAb construct. Homology has the opportunity to expand on this family through capsid shuffling. Both applications rely on the unique ability of Homology's AAVHSCs to efficiently target multiple tissues in the body. Homology's AAVHSCs were isolated from human stem cells, and Homology believes they can direct nuclease-free gene integration with higher efficiency relative to that indicated in published data for other AAV-based gene editing approaches. Homology's AAVHSCs display the following advantages:

Single AAVHSC Platform for Both Gene Therapy and Gene Editing Modalities

Homology's platform provides it the flexibility to deliver genetic medicines through the best suited modality from either gene therapy or gene editing for each disease it pursues, based on factors such as the targeted disease biology, the biodistribution of Homology's AAVHSCs to key tissues, and the rate of cell division the tissues exhibit.

Ability to Perform In Vivo Nuclease-free Gene Editing Mediated by HR

To demonstrate the utility of AAVHSC-mediated gene editing *in vivo*, Homology conducted a series of initial experiments utilizing AAVHSC15.

Homology obtained initial preclinical proof-of-concept for *in vivo* editing efficiency and tissue-specific expression through the design of a promoter-less luciferase construct targeting the murine Factor 8, or *F8*, locus using AAVHSC15. *F8* is a locus in the murine genome that is known to have a strong promoter but is expressed only in the liver.

AAVHSC15 packaging the promoter-less F8 targeting cassette (AAVHSC15-mF8-Luc) was administered by a single intravenous injection to albino-B6 mice and high levels of luciferase expression in livers were observed. Bioluminescence increased within a week post-dosing, reached a maximum within 1-2 months and remained significantly above that observed in vehicle-treated mice until the end of the study at 470 days post-dosing (*= P<0.0001 vs vehicle). *Ex vivo* imaging of tissues harvested on Day 470 showed highest luciferase expression within liver (*=p<0.008 vs vehicle), greater than 100-fold higher than other tissues assessed (**=P<0.0001 vs other tissues), which demonstrated specificity of tissue targeting by AAVHSC15-mF8-Luc. At 470 days post-dosing, vector genome levels within livers of treated mice were on average 4.7 ± 2.7 vector genomes/allele.

To molecularly characterize AAVHSC15-mF8-Luc-mediated genome editing, a ddPCR-based quantitative F8 editing assay was established. A combination of an F8 locus-specific primer and probe and editing vector specific primer and probe in the FAM and HEX channel, respectively, were used to calculate the fraction of *F8* loci that had an inserted luciferase transgene. Genomic DNA was isolated from livers of treated mice at termination of the study at 470 days post-dosing. Mice treated with AAVHSC15-mF8-Luc at this initial low dose of 5e12 vg/kg showed a statistically significant increase in genome editing efficiencies with up to 2.8% of alleles edited (mean 0.8% of alleles edited with a range of editing efficiencies 0.2-2.8%; p<0.03 vs. vehicle). These data demonstrate that AAVHSC15 mediated long-term *in vivo* editing of the targeted locus within the liver of mice at this dose.

To assess whether expression from AAVHSC15-mF8-Luc was episomal, an AAVHSC15-Luc editing vector was prepared with the splice acceptor sequences removed (designated AAVHSC15-Δ2AmF8-Luc) but maintained an intact Met initiator codon. Relative to an IV injection of vehicle alone, injection of AAVHSC15-mF8-Luc increased luciferase expression at Days 3, 7, and 14 post-dosing, similar to the results described above. By contrast, luciferase expression was reduced >95% for mice that received an identical dose of AAVHSC15-Δ2AmF8-Luc.

Ability to Introduce Entire Gene into the Genome Mediated via HR

This preliminary proof-of-principle described above provided data confirming the ability to edit the genome via nuclease free HR. Expanding on these initial data led to the discovery and development of a therapeutic program for PKU focused on the targeted integration of a full-length *PAH* cDNA into the human *PAH* locus.

Homology has successfully inserted full-length cDNA encoding PAH *in vivo* reaching levels of efficiency required for therapeutic efficacy. The preclinical data that supports HMI-103 is described in detail below in the Homology's Former Product Candidates section.

The ability to introduce entire genes specifically into the genome at these efficiencies provides an opportunity to target multiple monogenic diseases where the correction of a defective gene would result in therapeutic benefit. Given that a majority of monogenic diseases harbor mutations that render the gene inactive, Homology believes its gene integration modality can be expanded well beyond its initial focus on liver-based inborn errors of metabolism.

High Precision and Lack of Unwanted Off-target or On-target DNA Modifications

Using next-generation sequencing technologies, Homology has developed methodologies to test for on-target mutations at the site of integration. Using these methods, Homology observed that HR using Homology's AAVHSCs is very precise at the site of correction. Homology did not detect any co-incident random mutations at or above Homology's lower limit of detection (0.5%) or inverted terminal repeat, or ITR, sequences at the site of integration.

Homology developed a method to enable whole genome unbiased next-generation sequencing for the detection and mapping of off-target integration sites. By leveraging the potential ability of Homology's AAVHSCs to drive HR-based targeted integration, Homology can utilize next-generation sequencing technologies to identify and quantify where the inserted sequence maps. Using this method, and testing integration into the human AAVS1 locus, Homology estimates that 99.967% of insertions (>2.2 million reads)

are at the targeted site and that the balance is within expected background of the assay. Homology has expanded on this assay to characterize the on-target precision of integration at the *PAH* locus in support of HMI-103. In a humanized *in vivo* liver model, HMI-103 showed precise on-target integration and no off-target edits. These data were peer-reviewed and published in *PLOS ONE* in 2020 and are described below.

Ability to Target Multiple Tissues

In preclinical studies, intravenous administration of Homology's family of AAVHSCs has demonstrated the ability to target a wide variety of tissues including the liver, CNS, PNS, muscle, bone marrow, eye and heart (refer to Figure 4 below). Specifically, Homology has generated evidence of its AAVHSCs' ability to target a number of tissues including:

- neurons throughout the brain, spinal cord, and dorsal root ganglion by crossing the blood-brain-barrier and the blood-nerve-barrier;
- retinal ganglion cells and neurons of the retinal outer nuclear layer; Homology has also demonstrated the ability to target retinal tissue via intravenous injection as well as multiple layers of target cells, including photoreceptors, retinal pigment epithelial cells and horizontal cells, through sub-retinal injection;
- skeletal muscle myocytes in all skeletal muscle tissues examined, including gastrocnemius, soleus, diaphragm, esophagus, and biceps;
- cardiomyocytes throughout the heart; and
- extensive liver tropism.

Homology generated preclinical data showing that AAVHSC16, one of the capsids in its family of 15 naturally occurring AAVHSCs, demonstrated low levels of tropism to the liver and no elevations in liver enzymes while maintaining robust distribution to the CNS and peripheral organs following a single I.V. administration (refer to Figure 5 below). Homology believes the unique properties of AAVHSC16 make it an attractive capsid for development in new disease indications with Homology's genetic medicines platform. The data were peer-reviewed and published in the journal *Molecular Therapy—Methods & Clinical Development*.

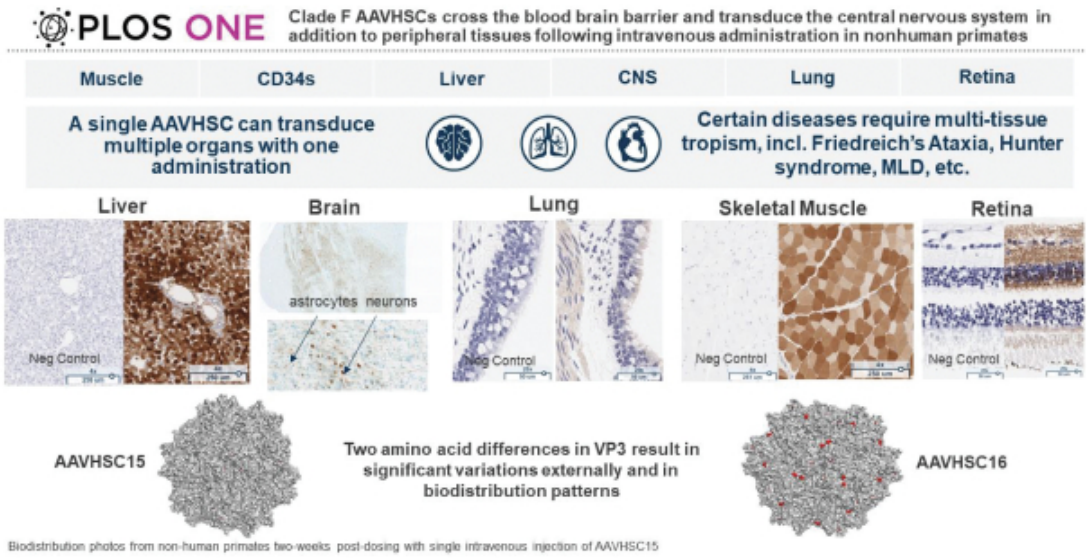


Figure 4. Homology's family of AAVHSCs has demonstrated the ability to target a wide variety of tissues.

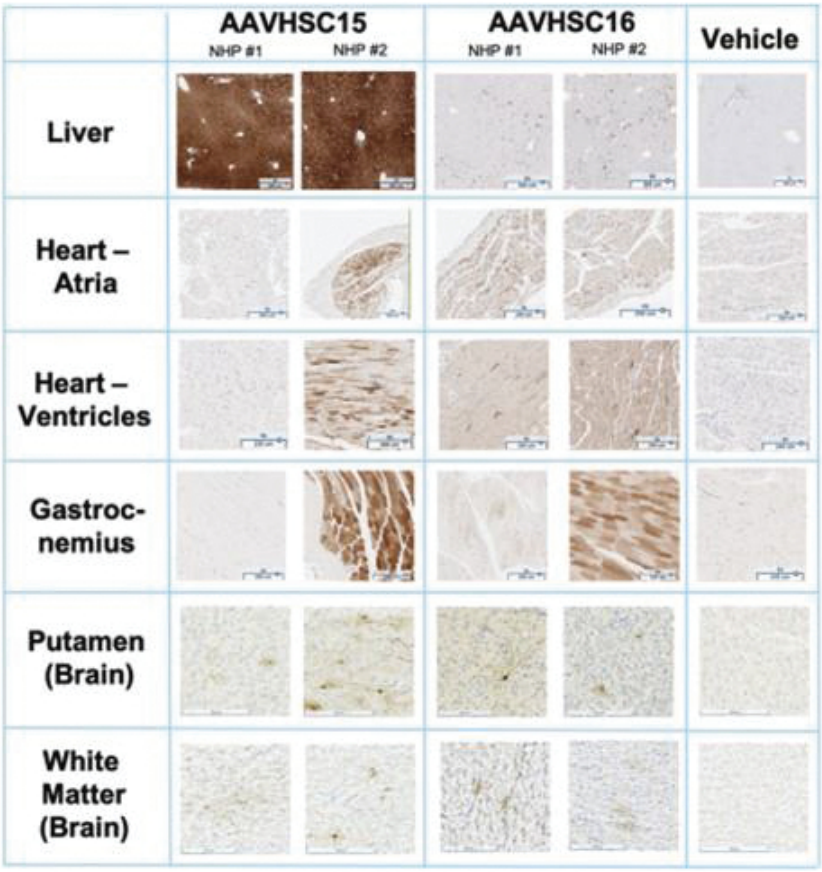


Figure 5. AAVHSC16 has reduced *in vivo* liver tropism in NHPs while exhibiting robust distribution to other peripheral organs and the CNS.

In vivo *Administration with a Single Component Delivery System*

Homology's platform is designed to perform gene integration at higher efficiency without the use of a nuclease, enabling it to deliver genetic medicines *in vivo* using a single vector system (refer to Figure 6 below). Existing nuclease-based gene editing technologies, when replacing a defective gene with a functional gene through gene editing, require the use of two or more different vector constructs in combination to perform their gene editing functions. One or more vector constructs house the nuclease, and the other vector construct houses the DNA template, and all vectors must reach and penetrate the specific target cell at the same time to edit the DNA. In contrast to these nuclease-based gene editing technologies, Homology's AAVHSC technology is a single component system that contains everything required to selectively integrate DNA with no need for additional exogenous nucleases, template DNA or editing machinery.

Homology believes its ability to perform gene integration at efficiencies that are greater than both nuclease-based and other AAV-based approaches, coupled with its single component delivery system, enable it to administer genetic medicines *in vivo*. Homology believes the advantages of *in vivo* administration of therapeutics via a single component delivery system include the following:

- simpler and faster manufacturing relative to *ex vivo* therapeutic approaches resulting in reduced manufacturing costs;

- improved delivery of therapeutics as only a single vector is required to reach a cell instead of multiple vectors;
- ease of use for the patient, eliminating the need for mobilization and myeloablation, a common requirement for many *ex vivo* gene editing therapies; and
- improved safety profile, as compared to an *ex vivo* therapy.

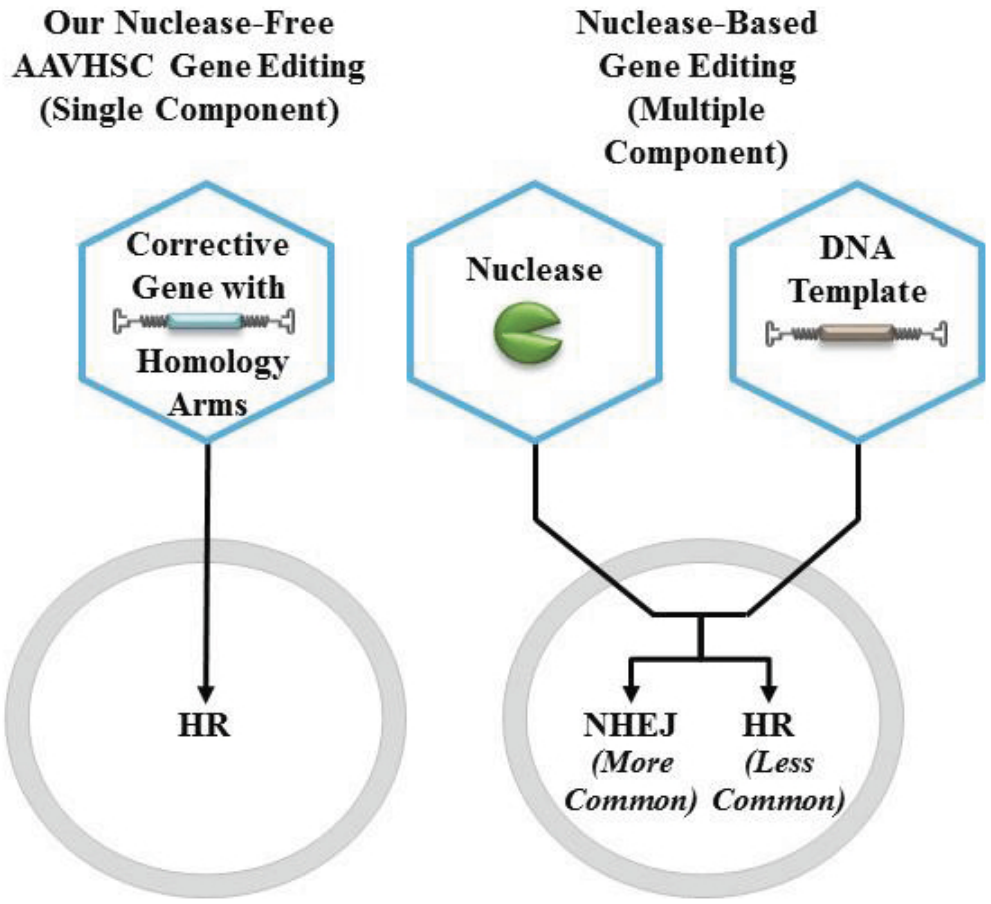


Figure 6. Homology's nuclease-free AAVHSC single-component gene editing construct vs. nuclease-based multiple-component gene editing construct for gene editing applications.

Ability to Target a Broad Range of Patients Given Low Frequency of Pre-Existing Neutralizing Antibodies

A potential concern for all AAV vectors is the presence of pre-existing neutralizing antibodies that have the potential to reduce their effectiveness. Homology conducted a study across 100 human serum donors representing different ethnic segments of the U.S. population. Based on the initial results, Homology believes the findings suggest that approximately 80% of individuals lack antibodies that recognize AAVHSCs, which is comparable to AAV9, a commonly used vector for development of other gene therapies. These findings were published in *Human Gene Therapy Clinical Development* in March 2018.

Homology's Former Product Candidates

HMI-103 Gene Editing Candidate for the Treatment of Adult Patients with PKU

Homology's lead gene editing program, HMI-103, was a one-time, *in vivo*, nuclease-free gene editing candidate for the treatment of classical PKU. HMI-103 was designed to harness the body's natural DNA repair process of homologous recombination to replace the disease-causing gene with a functional gene and liver-specific promoter and to maximize PAH expression in all transduced liver cells through episomal expression.

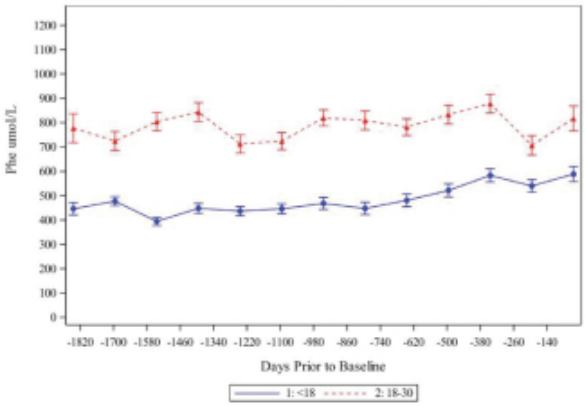
PKU Disease Overview

PKU is an inborn error of metabolism that results from mutations in the *PAH* gene. PAH is an enzyme that is normally expressed in the liver and is necessary to metabolize dietary phenylalanine, or Phe, to the amino acid tyrosine, or Tyr. Tyr is a product of Phe metabolism and a precursor to neurotransmitters, and its increase indicates increased enzymatic activity. PKU results from mutations in *PAH* that render its enzymatic activity deficient. If it is not metabolized by PAH, Phe builds up throughout the body, including in the blood and the nervous system. Approximately 75% of all dietary Phe is typically metabolized by PAH, so the absence of PAH leads directly to the pathological excess of Phe as well as a deficiency of Tyr. Excessive blood Phe and low levels of Tyr result in intellectual disability, which is possibly caused by a variety of mechanisms including effects on neuronal development, myelination, and neurotransmitter synthesis. Blood Phe is an easily measurable and translatable biomarker. It is also a validated clinical endpoint in clinical trials for PKU, facilitating both a rapid path to the clinic and characterization of therapeutic response.

Newborns in all 50 states are screened for PKU. It has been estimated that the incidence of PKU in the United States is one in 12,707, which translates to approximately 350 cases per year with an overall prevalence of 16,500. It has also been estimated that the prevalence of PKU in the European Union is 25,000. Worldwide, the estimated prevalence is 50,000 with 1,000 to 1,500 new cases annually.

The majority of patients are identified soon after birth and are primarily treated by dietary restriction of Phe. While Phe-restricted diets have dramatically reduced the intellectual deficiencies associated with this disease, they fail to address the cognitive and behavioral problems that continue throughout a patient's life. Lifetime adherence to a Phe-restricted diet is challenging and blood Phe within the recommended range is not achievable for the vast majority of patients. The inability to achieve recommended levels of Phe results in neurological as well as metabolic problems. Long-term studies in adults identify neurocognitive, psychosocial, quality of life, growth, nutrition, bone pathology and maternal PKU outcomes that are suboptimal despite early and continuous treatment with diet. In a retrospective study of PKU patients, peer-reviewed and published in the journal of *Molecular Genetics & Metabolism*, young children were adherent to Phe-restricted diet, whereas most adolescents (79%) did not achieve recommended Phe levels, and 88% of adults were no longer on a Phe-restricted diet. Relaxing of dietary restrictions beyond preschool years, or failure to adhere to physician-assigned diets, which is the current guideline for most adolescents and adults, results in loss of metabolic control and wide fluctuations in Phe levels that are both directly associated with progressive neurological damage.

Homology conducted a five-year retrospective chart review of PKU patients, which confirmed key elements of Homology's PKU programs. Consistent findings from two PKU academic centers of excellence in the U.S. in 152 PKU patients showed that actively monitored patients, including those on restrictive low Phe diet, had Phe levels well-above the recommended threshold of 360 umol/L, based on current U.S. treatment guidelines, underscoring the need for treatments that restore the normal biochemical pathway (refer to Figure 7 below). Furthermore, Homology confirmed that Phe continues to be higher, even on standard of care, in the classical PKU population, defined as patients with Phe levels greater than 1200 umol/L (66% of the study population) without treatment, and was significantly elevated in the adult population compared to those patients who were less than 18 years of age. These findings were published in *Molecular Genetics and Metabolism* in December 2019.



	Combined Sites
# Patients	152
% Female / Male	51% / 49%
% Classical PKU	66%
≥18	57%

Figure 7. Retrospective five-year chart review demonstrates actively monitored adult classical PKU patients across two academic centers have Phe levels >700 umol/L.

Current Treatments

There are currently no available treatments that address the core underlying genetic biochemical defect in PKU, the deficiency of PAH.

Saproterin dihydrochloride, or Kuvan(R), is an FDA-approved therapy to reduce elevations in serum Phe. Kuvan is a synthetic version of BH4, a cofactor that is required for PAH activity. Treatment with BH4 can activate residual PAH enzyme activity, improve the normal oxidative metabolism of Phe, and decrease Phe levels in some patients; however, clinical data suggests that Kuvan is not fully effective in lowering high serum levels of Phe back to normal levels and must be used in conjunction with a low Phe diet. While this approach can increase residual PAH activity, it does not fully correct the underlying genetic disorder (PAH deficiency). Worldwide sales of Kuvan were approximately $228 million in 2022. Generic versions of Kuvan are available in several countries around the world, including multiple generic versions in the U.S.

Pegvaliase, or Palynziq(R), is a pegylated plant-derived enzyme called phenylalanine ammonia lyase that was approved in the U.S. by the FDA in 2018 and in Europe by the EC in 2019. Similar to Kuvan, this approach does not correct the underlying genetic disorder (PAH deficiency) and will not reconstitute the natural pathway. Homology believes Palynziq to have certain limitations including that it must be administered via daily injections and its label contains a black box warning that it can cause severe allergic reaction (anaphylaxis) that may be life-threatening and can happen at any time during treatment with Palynziq. The label states that patients must carry auto-injectable epinephrine with them at all times during Palynziq treatment. Patients in its Phase 3 trials did not meet the secondary efficacy endpoints for cognitive benefit. Worldwide sales of Palynziq were approximately $255 million in 2022.

Homology's Gene Editing Approach to PKU

The goal of Homology's gene integration approach is to enable production of functional PAH, thus restoring the normal biochemical pathway of Phe metabolism. This can reduce the abnormally high levels of Phe in the blood, while also increasing Tyr levels, the product of PAH-driven Phe metabolism. Homology believes the gene integration approach would be optimal for newborn and pediatric patients due to the higher rate of dividing cells as the child grows. Using gene editing to correct the defective *PAH* gene in young patients has the potential to provide long-term benefit as the corrected gene will persist as cells replicate. Correcting the gene has the potential to normalize not only Phe levels, but also Tyr levels, the product of the Phe metabolism and a precursor to neurotransmitter synthesis. This may allow affected children to avoid many of the serious neurological consequences associated with PKU.

Homology believes that an effective gene editing treatment for PKU has the potential to eliminate the need for Phe-restricted diet and may lead to significant improvements in the morbidity and quality of life for patients. Published estimates suggest that restoration of PAH activity to 10% or more of normal levels would lead to significant improvements in serum Phe levels and potentially represent a curative therapy.

The gene editing vector transgene is flanked by left and right homology arms, containing sequences that are identical and specific to the genomic target. The arms were designed to integrate by non-nuclease-based, AAV-mediated HR into the target human PAH locus. This therapy aims to correct the genetic defect within the treated liver cells then directing the expression of the PAH protein. HR-based integration via AAVHSCs is highly precise, without the introduction of insertions, deletions or viral ITRs. The corrected copy of the PAH gene would be retained as cells divide into daughter cells as the liver grows. Screening for PKU of all newborns in the United States allows for the identification of affected individuals before serious neurological complications develop. Homology believes its HR approach possesses the efficacy and durability characteristics that would be appropriate to treat PKU in newly identified patients.

Preclinical Studies with HMI-103

Homology has conducted *in vivo* experiments showing the integration of a human PAH cDNA into the human PAH gene locus using a humanized liver mouse model. In this model, human hepatocytes constitute the majority of the liver cells, providing an *in vivo* model to test human-specific editing constructs. Injection of the HMI-103 gene editing candidate in this model resulted in the insertion of a codon-optimized human *PAH* cDNA into the human *PAH* locus and mRNA expression of the *PAH* cDNA. The *in vivo* integration rate at the target locus, shown in Figure 8, was calculated at a frequency of 6%. This level of editing has been shown to be sufficient to normalize Phe levels in the murine model. A second assay was also performed on DNA that was specific for human and murine hepatocytes obtained from this study. The assay provides an orthogonal approach for characterizing the frequency of targeted integration and enables testing the species-selectivity of the targeted integration. The results of this assay showed integration only in the human hepatocytes and not in the murine hepatocytes, demonstrating selectivity for the human locus. Figure 9 below shows data following I.V. administration of the murine surrogate, or the murine version of HMI-103. The human construct is designed with human-specific homology arms, so a murine surrogate is necessary for testing in the PKU murine model. As depicted, Homology observed that *PAH* gene integration was durable out to 43 weeks (end of study) and resulted in marked and durable serum Phe reduction.

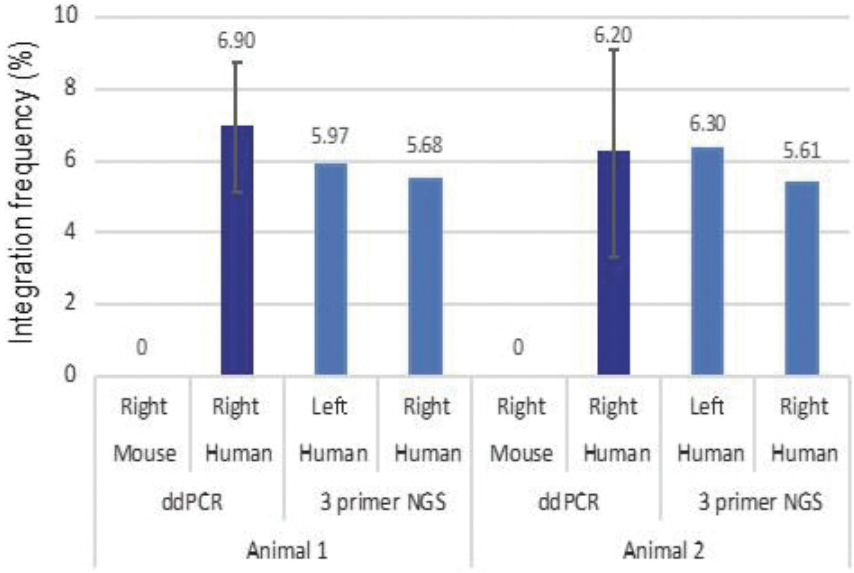


Figure 8. Human-specific AAVHSC PAH gene editing candidate resulted in a targeted integration rate of 6%, as measured by NGS in an *in vivo* humanized liver murine model.

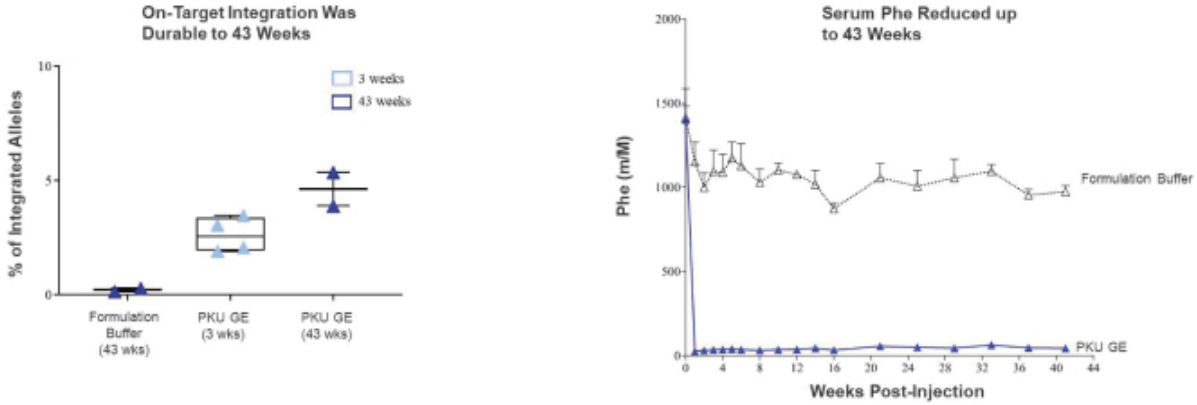


Figure 9. I.V. administration of murine surrogate (with murine homology arms) of HMI-103 showed durable gene integration in the Pah^{enu2} model of PKU.

The fidelity of the integration of the cDNA into the target locus was evaluated by NGS sequencing. There were no *de novo* mutations detected in either homology arm target site. Homology also evaluated the samples for the presence of ITRs. Viral ITRs are non-homologous sequences that lie beyond the extent of the recombination event and thus should not be integrated into the target site. The integrated alleles were free of ITR sequence, consistent with HR as the main mechanism for integration. Together, these data showed that the targeted integration of the human *PAH* cDNA into the human *PAH* locus displayed sequence fidelity with no evidence of mutations. A genome-wide integration assay using long-read NGS was developed to assess for off-target HR-mediated integration in human hepatocytes. No off-target HR-mediated integration sites were detected above the limit of detection.

The potency of HMI-103 was compared to non-integrating gene therapy vector HMI-102. In a dose-range finding study, the murine surrogate of HMI-103 and gene therapy vector HMI-102 were administered via one-time I.V. infusions to the *Pah*^{enu2} model, and the murine surrogate of HMI-103 was ten times more potent than HMI-102, which was consistent across all time points tested.

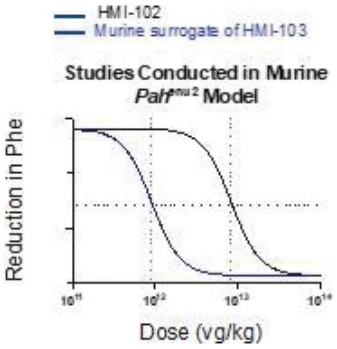


Figure 10. HMI-103 was ten times more potent than non-integrating gene therapy construct HMI-102 in the *Pah*^{enu2} model of PKU. The analysis compared the dose at which fifty percent Phe reduction was achieved in the model.

In 2023, Homology presented preclinical data at WORLDSymposium™, which supported the immunosuppression regimen that was incorporated in its former clinical trials. In NHPs, Homology's data

demonstrated that modulating T-cell activity using tacrolimus together with dexamethasone was important in reducing B-and T-cell activity, neutralizing antibody, or nAb, formation, and maintaining transgene expression following rAAV administration in NHPs.

pheEDIT Phase 1 Clinical Trial with HMI-103

In September 2023, Homology inactivated its pheEDIT Phase 1 gene editing clinical trial evaluating HMI-103 in adults with classical PKU (NCT05222178).

The pheEDIT clinical trial was an open-label, dose-escalation study evaluating the safety and efficacy of a single I.V. administration of HMI-103 in patients ages 18-55 years old who were diagnosed with classical PKU due to phenylalanine hydroxylase, or PAH, deficiency. In addition to safety endpoints, the trial measured serum Phe changes. The trial incorporated an immunosuppressive regimen that included a T-cell inhibitor used in combination with a steroid-sparing regimen. Patients were dosed following requisite Institutional Biosafety Committee and Institutional Review Board approvals at the clinical sites, and completion of an 82-day screening/run-in period to account for and more closely understand day-to-day Phe fluctuations of participants.

In October 2023, Homology reported clinical data from the first dose cohort in the pheEDIT trial. As of the data cut-off date of September 14, 2023, HMI-103 was generally well-tolerated in all three participants with no serious adverse events, and the majority of treatment-related adverse events were mild and transient. All liver function tests remained in the normal range during the prophylactic immunosuppression regimen incorporating the T-cell inhibitor tacrolimus in combination with corticosteroid. Participant 1 experienced a reduction in plasma phenylalanine, or Phe, levels to below the U.S. American College of Medical Genetics and Genomics PKU treatment guideline threshold of <360 µmol/L, and the majority of Phe levels were below 360 µmol/L through 39 weeks post-dose, including after the initiation of dietary protein supplementation. Participant 2 experienced a meaningful plasma Phe reduction of 50% at 23 weeks post-dose. Participant 3 experienced a meaningful plasma Phe reduction of 60% at 14 weeks post-dose.

HMI-102 Investigational Gene Therapy for the Treatment of Adult Patients with PKU

HMI-102 was an AAVHSC vector gene therapy candidate designed to treat PAH deficiency, the underlying genetic cause of PKU. HMI-102 consisted of an AAVHSC15 vector containing the coding sequence of human PAH under control of a promoter designed to continuously express PAH, specifically in the liver. Homology chose AAVHSC15 as the basis of this product candidate because of its tropism for the liver, the normal site for PAH protein expression.

pheNIX Phase 1/2 Clinical Trial with HMI-102

In August 2023, Homology terminated its pheNIX Phase 1/2 gene therapy clinical trial evaluating HMI-102 in adults with classical PKU. In September 2023, Homology withdrew its IND for the pheNIX Phase 1/2 clinical trial.

The pheNIX clinical trial was designed to evaluate the safety and efficacy of the investigational gene therapy in a randomized, concurrently controlled, dose-escalation study in adult patients aged 18–55 years old with classical PKU. The dose-escalation phase of the trial was designed to evaluate safety and efficacy of ascending doses of HMI-102 to enable the selection of a dose for the randomized, concurrently controlled Phase 2 portion of the trial. Homology enrolled six patients in the dose-escalation phase across three dose cohorts.

In November 2020, Homology reported positive clinical data from the dose-escalation phase of the trial. Safety data from the six patients as of the cutoff date of October 19, 2020, showed HMI-102 was generally well-tolerated, and there were no treatment-related serious adverse events. There were no clinically significant

changes in electrocardiogram or vital signs, no clinical signs of complement activation and no adverse events related to bilirubin. Alanine aminotransferase, or ALT, elevations, which are common in AAV-based gene therapy trials, were asymptomatic and managed with increased steroids when necessary and all ALT elevations were resolved. Efficacy data showed significant plasma Phe reductions in Cohorts 2 and 3, compared to Cohort 1 ($P<0.004$ post-hoc comparison using repeated measures MANOVA, or multivariate analysis of variance regression analysis), with two patients achieving target Phe levels per treatment guidelines, even while self-liberalizing diet. Compared to baseline, patients in Cohorts 2 and 3 also displayed Tyr increases and Phe-to-Tyr ratio decreases consistent with PAH enzymatic activity.

Based on the safety and efficacy results observed in the dose-escalation phase as of the cutoff date, in early 2021, Homology advanced to the Phase 2 randomized, concurrently controlled, expansion phase of the pheNIX trial. Homology selected two doses for the expansion phase: 6E13 vg/kg and 8E13 vg/kg. In October 2021, Homology announced that as of September 30, 2021, both doses in the expansion phase of the trial were generally well-tolerated and showed evidence of biological activity, including clinically meaningful reductions in Phe levels, increases in Tyr and reductions in the Phe-to-Tyr ratio.

On February 18, 2022, Homology announced that its pheNIX gene therapy trial was placed on clinical hold due to the need to modify risk-mitigation measures in the study in response to observations of elevated liver function tests, or LFTs. On March 17, 2022, Homology received the official clinical hold letter from the FDA requesting information on elevated LFTs observed in some patients in the trial and modified clinical risk-mitigation measures. In patients who experienced elevated LFTs, all have resolved and no hospitalizations were required. Homology responded to the FDA regarding the clinical hold, and included in its response was a protocol amendment designed to address the FDA's requests and reduce the risk of observing further elevated LFTs in the trial, including among other things, a new, more targeted immunosuppressive regimen that utilized a T-cell inhibitor and a shorter duration and earlier tapering of steroids. The use of T-cell inhibitors has been shown to be effective in dampening the anticipated immune response to AAV capsids in the clinical setting. This proposed immunosuppressive regimen was incorporated into Homology's pheEDIT clinical trial for the treatment of patients with PKU. On June 13, 2022, Homology announced that the FDA lifted the clinical hold, with the FDA noting in its response that Homology satisfactorily addressed all clinical hold issues identified in the March 17, 2022 letter.

On August 15, 2022, Homology paused the enrollment of its Phase 1/2 pheNIX clinical trial with HMI-102, in order to focus resources and efforts on its Phase 1 pheEDIT clinical trial evaluating *in vivo* gene editing candidate HMI-103 for PKU. In August 2023, Homology terminated its pheNIX Phase 1/2 gene therapy clinical trial evaluating HMI-102 in adults with classical PKU and in September 2023, Homology withdrew its IND for the pheNIX clinical trial.

HMI-203 Investigational Gene Therapy for the Treatment of Adult Patients with MPS II (Hunter Syndrome)

HMI-203 was a one-time gene therapy candidate for the treatment of patients with Hunter syndrome. HMI-203 was designed to use one of Homology's AAVHSC vectors to deliver functional copies of the *IDS* gene to multiple target organs, including the PNS and CNS, following a single I.V. administration, where there are missing or mutated copies of the gene.

Hunter Syndrome Disease Overview

Hunter syndrome is a rare, X-linked lysosomal storage disorder caused by mutations in the iduronate-2-sulfatase, or *IDS*, gene, which is responsible for producing the I2S enzyme that breaks down large sugar molecules, or cellular waste, called glycosaminoglycans, or GAGs. Severe Hunter syndrome results in toxic lysosomal accumulation of GAGs that causes progressive debilitation and decline in intellectual function. Hunter syndrome occurs in approximately 1 in 100,000 to 1 in 170,000 males, and the severe form leads to life expectancy of 10 to 20 years. In August 2022, the Department of Health and Human Services approved the addition of MPS II as a condition to the recommended uniform screening panel for newborns.

Current Treatments

The standard of care for treating Hunter syndrome is enzyme replacement therapy, or ERT, which can delay some complications but does not treat CNS manifestations of Hunter syndrome given that the enzyme cannot cross the blood-brain-barrier. In 2006, the recombinant form of human I2S (Elaprase), an ERT for the treatment of Hunter syndrome was approved by the FDA and subsequently approved for use internationally. In January 2021, the recombinant form of idursulfase-beta (Hunterase), an ERT for the treatment of Hunter syndrome received manufacturing and marketing approval in Japan and in March 2021, pabinafusp alfa, a recombinant iduronate-2-sulfatase ERT that delivers therapeutics across the blood-brain barrier was approved by the Ministry of Health, Labour and Welfare in Japan and has been marketed since May 2021 under the brand name "IZCARGO® I.V. Infusion 10mg." However, specific treatment to address the neurological manifestations of Hunter syndrome and prevent or stabilize cognitive decline remains a significant unmet medical need outside of Japan.

Preclinical Studies with HMI-203

In preclinical studies, a single I.V. administration of HMI-203 led to robust biodistribution and sustained human I2S (hI2S) enzyme expression, which resulted in significant reductions in key Hunter syndrome biomarkers of heparan sulfate GAGs and lysosomal-associated membrane protein 1 (LAMP-1) in the brain, liver, heart, spleen, lungs and kidneys compared with the vehicle. Significant reductions in heparan sulfate GAGs in the cerebrospinal fluid (CSF) compared with vehicle were also observed, as well as ameliorated paw deformities, as shown by significant changes in measurements of ankle depth, paw width, paw depth and ankle width compared with vehicle. Finally, HMI-203 administration led to uptake of hI2S from the serum of the HMI-203-treated model in human cell lines, which demonstrated the potential for cell cross-correction. These data were presented at WORLD*Symposium*™ in 2021 and 2022 (refer to Figure 11 below).

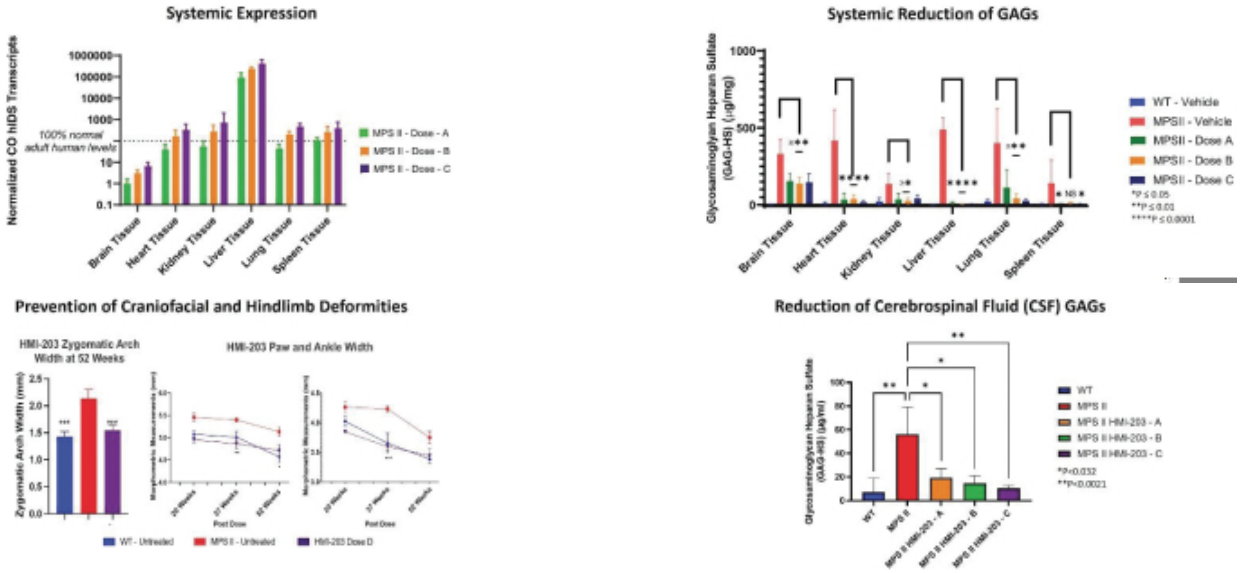


Figure 11. Single IV administration of HMI-203 demonstrated systemic expression, reduction of GAGs, and correction of phenotype in murine model.

juMPStart Phase 1 Clinical Trial with HMI-203

In August 2023, Homology terminated its juMPStart Phase 1 gene therapy clinical trial evaluating HMI-203 in adults with Hunter Syndrome and in December 2023, withdrew its IND for the juMPStart clinical trial.

The juMPStart clinical trial was an open-label, dose-escalation study evaluating the safety and efficacy of a single I.V. administration of HMI-203, expected to enroll up to nine male patients in up to three dose cohorts, ages 18-45 years old, who had been diagnosed with Hunter syndrome and were receiving enzyme replacement therapy. In addition to safety endpoints, the trial was designed to measure plasma I2S activity, urinary GAG levels and other peripheral disease manifestations. Qualitative data on unmet medical needs from ERT-treated adult MPS II patients and/or their caregivers helped inform Homology's trial design. Patients and caregivers reported that weekly ERT infusions, surgeries and supportive therapies inadequately address range of motion and mobility, pain, and hearing loss, that there are burdens associated with ERT and other therapies, including frequency and duration of treatment, and painful and extended recoveries, that there is a high degree of anxiety regarding prognosis, longevity, need for more invasive surgeries, and financial challenges and that the expectations for a potential one-time gene therapy include the ability to maintain their current quality of life with ERT independence. Also, key opinion leaders surveyed supported Homology's planned design for the juMPStart clinical trial, including Homology's plan to discontinue ERT.

HMI-204 for Treatment of Adult Patients with MLD

Homology completed IND-enabling studies with HMI-202, an investigational gene therapy for the treatment of patients with MLD. Applying the learnings from these IND-enabling studies, in August 2022, Homology announced the details of HMI-204, an optimized, *in vivo*, one-time gene therapy product candidate for the treatment of MLD. Homology is no longer developing HMI-204.

MLD is a lysosomal storage disease caused by mutation of a gene called arylsulfatase A, or *ARSA*. The protein ARSA is required for the breakdown of cellular metabolic products that in MLD accumulate in all cells of the body. Cells responsible for the production of myelin are especially sensitive to the toxic build-up of these cellular metabolic products, leading to progressive serious neurological deterioration. The late infantile form of MLD, which is the most common form, includes rapidly progressive motor and cognitive decline and loss of vision. The majority of these patients do not survive past the first decade of life.

In Europe, Libmeldy (autologous CD34+ cells encoding the ARSA gene), a lentiviral vector-based gene therapy for the treatment of MLD, became the first therapy approved for eligible patients with early-onset MLD in December 2020 following receipt of full (standard) market authorization by the EC. This treatment is not currently approved in the United States. While efficacious in late infantile and early juvenile children (with no or very early onset of symptoms), it has significant drawbacks, including myeloablation, the use of immunosuppression therapy, delayed onset of ARSA expression post-engraftment, conditioning regimens, and the risk of death from stem cell transplantation.

At WORLD*Symposium*™ in 2023, Homology reported the outcome of the optimization of HMI-202 resulting in the nomination of HMI-204. The design optimization focused on achieving near-normal (or higher) ARSA expression in all disease-relevant tissues, in addition to overall manufacturing improvements. HMI-204 is a single-stranded codon-optimized *ARSA* sequence driven by a ubiquitous promoter (AAVHSCco*ARSA*). Following a single intravenous administration, HMI-204 resulted in broad and targeted systemic biodistribution and robust expression in the central nervous system, consistent with Homology's previously reported crossing of the blood-brain barrier in the *Arsa* knockout murine model of MLD.

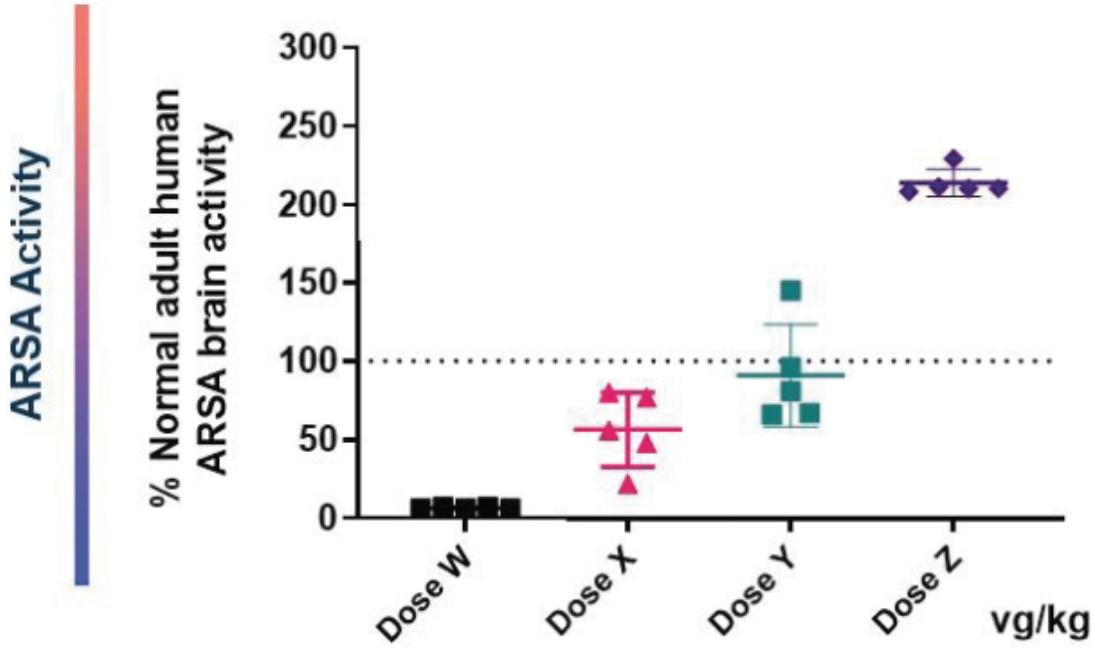


Figure 12. Single administration of HMI-204 crossed the blood-brain barrier and resulted in a dose-response in ARSA activity in the brain of Arsa KO mice, as assessed 12 weeks post dosing. HMI-204 achieved levels of ARSA expression (doses X, Y and Z) predicted to lead to a direct motor benefit in the rotarod assay, as previously demonstrated with HMI-202.

In the brain of HMI-204-treated adult Arsa knockout mice, ARSA cellular expression patterns were nearly identical to that of murine Arsa distribution in wildtype age-matched littermates, as previously demonstrated with HMI-202. Moreover, the optimized HMI-204 construct showed lowered expression in the heart (as compared with HMI-202), while maintaining strong liver expression, as demonstrated by anti-ARSA immunohistochemistry (refer to Figure 13 below). Lastly, an overall improvement in HMI-204 productivity was achieved (refer to Figure 14 below).

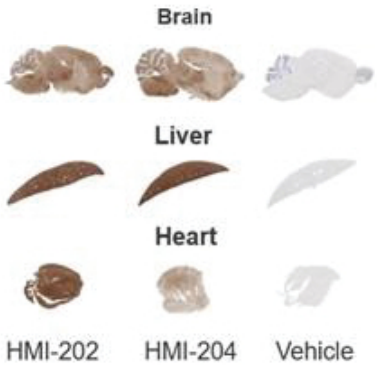


Figure 13. In Arsa KO mice, HMI-204 maintained a robust and broad distribution of ARSA across the entire axis of the brain and liver while lowering its expression in heart tissue, as compared with the anti-ARSA biodistribution achieved with HMI-202.

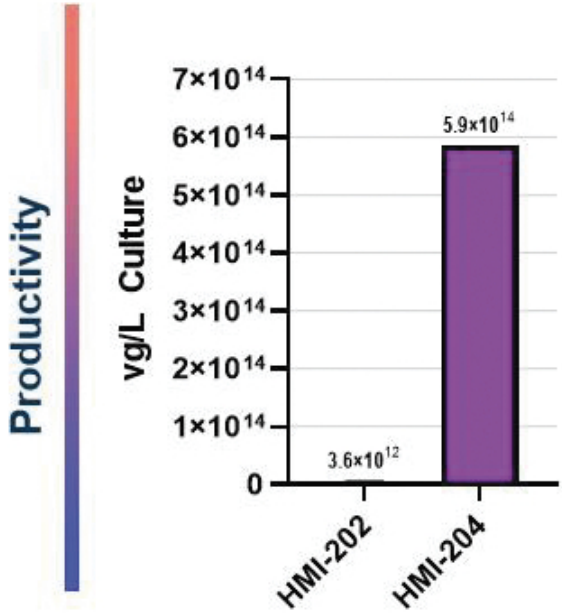


Figure 14. Outcome of HMI-204 packaging productivity achieved leading to an ~120% improvement in vector genome yields compared with historical HMI-202 data.

HMI-104 for the Treatment of Adult Patients with PNH

In August 2021, Homology named a clinical development candidate for PNH, HMI-104, from Homology's GTx-mAb platform. Homology is no longer developing HMI-104.

PNH is a rare, acquired, life-threatening blood disease caused by mutations in the PIGA gene that result in intravascular hemolysis, or red blood cell destruction, mediated by uncontrolled activation of the complement system. PNH results in thromboses, recurrent pain, severe anemia, kidney disease and impaired quality of life, among other outcomes.

Homology's GTx-mAb platform represents an additional way that Homology could potentially leverage its AAVHSCs to deliver one-time *in vivo* gene therapy to express and secrete antibodies from the liver, which Homology believes may allow it to target diseases with larger patient populations. In support of this program, Homology generated and presented preclinical data targeting complement protein 5, demonstrating preclinical proof-of-concept in PNH. A single I.V. dose of an AAVHSC GTx-mAb showed expression of full-length antibodies from the liver consistent with anti-C5 therapeutics levels, sustained and robust Immunoglobulin G, or IgG, expression *in vivo* in a humanized murine liver model and a murine NOD-SCID model, and *in vivo* vector-expressed C5 mAb had potent functional activity as shown by an *ex vivo* hemolysis assay. Additionally, Homology observed sustained expression of C5 mAb in the presence of murine and human FcRn. Homology completed IND-enabling studies with HMI-104.

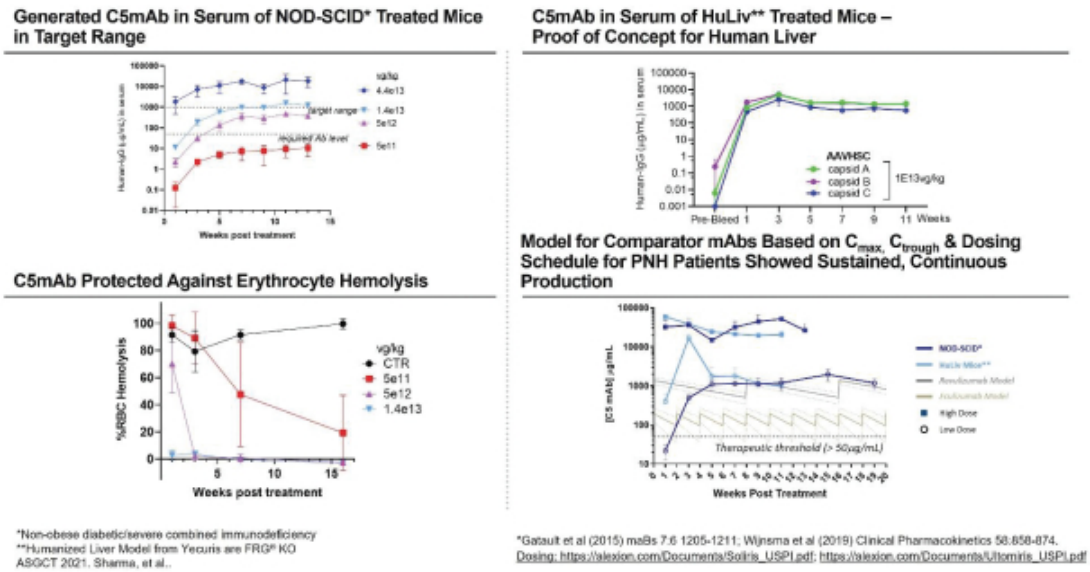


Figure 15. Preclinical C5 Data Demonstrated Potential when Administered as a Sustained, Low Dose, One-Time Treatment.

Manufacturing

In 2022, Homology established OXB (US) LLC, an AAV manufacturing and innovation business which incorporated Homology's process development and manufacturing platform and process that supports both gene therapy, gene editing and Homology's GTx-mAb platform, and is scalable from preclinical to GMP. Homology's process development and manufacturing strategy leveraged a single platform for gene therapy, gene editing and Homology's GTx-mAb platform that is scalable and facilitates rapid development to the clinic. Homology leveraged its manufacturing platform across its entire pipeline, from its research programs to its preclinical and

clinical programs. Homology's platform was designed from its inception to be its commercial process, allowing it to rapidly transition from research into the clinic and eventually to commercialization. Prior to the transaction with Oxford, Homology's manufacturing platform was scaled and tested across more than 450 different constructs with more than 550 unique lots of vector successfully executed. OXB (US) LLC announced that its platform has produced high-quality titers of E15 vg/L and achieved over 90% fully intact vector. Homology's manufacturing platform has been scaled to 2000L in non-GMP and 500L in GMP.

Homology's manufacturing strategy utilized mammalian cells for its AAVHSC vector-based product candidates. All of Homology's former programs utilized HEK293 transfection in a serum-free suspension bioreactor process. HEK293 is a well-characterized and commonly used system for many clinical-stage AAV vector products. Additionally, HEK293 cells are familiar to regulatory authorities, and commercial raw materials and reagents are readily available. Homology's purification leveraged chromatography-based operations to provide high quality vector and ensure robust commercial-scale operations. In addition to its process development, Homology also internally developed 45 analytical methods to test, monitor, and characterize its products.

Oxford Biomedica (US) LLC Transaction

On March 10, 2022, Homology closed a transaction with OXB (US) LLC, OXB, and OXB Parent pursuant to the Purchase Agreement, dated as of January 28, 2022, by and among Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development and manufacturing services to biotechnology companies, which Homology refers to as the Oxford Biomedica (US) LLC Transaction, or the OXB (US) LLC Transaction. OXB (US) LLC incorporates Homology's proven 'plug and play' process development and manufacturing platform, as well as Homology's experienced team and high-quality GMP vector production capabilities that Homology built and operated since 2019.

Pursuant to the terms of the Purchase Agreement and a contribution agreement, or the Contribution Agreement, entered into between Homology and OXB (US) LLC prior to the closing of the OXB (US) LLC Transaction, or the Closing, Homology agreed to assign and transfer to OXB (US) LLC all of Homology's assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy or gene editing products, but excluding certain assets related to manufacturing or testing of Homology's proprietary AAV vectors, or collectively, the Transferred Assets, in exchange for 175,000 common equity units in OXB (US) LLC, or Units, and OXB (US) LLC assumed from Homology, and agreed to pay, perform and discharge when due, all of Homology's duties, obligations, liabilities, interests and commitments of any kind under, arising out of or relating to the Transferred Assets.

Effective as of the Closing, Homology sold to OXB, and OXB purchased from Homology, 130,000 Units, or the Transferred Units, in exchange for $130.0 million. In connection with the Closing, OXB contributed $50.0 million in cash to OXB (US) LLC in exchange for an additional 50,000 Units. Immediately following the Closing, (i) OXB owned 180,000 Units, representing 80 percent (80%) of the fully diluted equity interests in OXB (US) LLC, and (ii) Homology owned 45,000 Units, representing 20 percent (20%) of the fully diluted equity interests in OXB (US) LLC.

Pursuant to the Amended and Restated Limited Liability Company Agreement of OXB (US) LLC, or the OXB (US) LLC Operating Agreement, which was executed in connection with the Closing, at any time following the three-year anniversary of the Closing, (i) OXB will have an option to cause Homology to sell and transfer to OXB, and (ii) Homology will have an option to cause OXB to purchase from Homology, in each case all of Homology's equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period, subject to a specified maximum amount. Pursuant to the terms of the OXB (US) LLC Operating Agreement, Homology is entitled to designate one director on the board of directors of OXB (US) LLC, currently Paul Alloway, Ph.D., Homology's President and Chief Operating Officer.

Concurrently with the Closing, Homology entered into certain ancillary agreements with OXB (US) LLC including a license and patent management agreement whereby OXB (US) LLC granted certain licenses to Homology, a supply agreement for a term of three years which includes certain annual minimum purchase commitments, a lease assignment pursuant to which Homology assigned all of its right, title and interest in, to and under Homology's facility lease to OXB (US) LLC, a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology, as well as several additional ancillary agreements.

Competition

The biotechnology and pharmaceutical industries, including in the gene therapy and gene editing fields, are characterized by rapidly advancing technologies, intense competition and a strong emphasis on intellectual property and proprietary products. While Homology believes that its technology, development experience and scientific knowledge provide it with competitive advantages, Homology has requested withdrawal or discontinuation of each of its previously open INDs. Should Homology resume development of its product candidates, Homology will face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies, and public and private research institutions that conduct research, seek patent protection, and establish collaborative arrangements for research, development, manufacturing, and commercialization. Not only would Homology compete with other companies that are focused on gene therapy and/or gene editing technologies, any product candidates that Homology successfully develops and commercializes would compete with existing therapies and new therapies that may become available in the future.

Homology competes in the segments of the pharmaceutical, biotechnology and other related markets that utilize technologies encompassing genomic medicines to create therapies, including gene therapy and gene editing. There are additional companies that are working to develop therapies in areas related to Homology's research programs.

Homology's platform and product focus was the development of genetic medicines using its proprietary AAVHSCs *in vivo* through a nuclease-free gene editing modality, gene therapy, or GTx-mAb, which is designed to produce antibodies throughout the body. If Homology were to resume development of one or more of its product candidates and any of those product candidates were approved for the indications for which Homology's clinical trials were originally designed, they may compete with other products currently under development, including gene therapy and gene editing products or other types of therapies, such as small molecule, antibody or protein therapies. If Homology were to resume development of its PKU HMI-103 product candidate and it were to be approved, it may compete with therapies from American Gene Technologies, BioMarin, Generation Bio, Moderna, Nestlé Health Science, PTC Therapeutics, Jnana Therapeutics, Poseida Therapeutics and Synlogic. However, Homology believes that only gene therapy or gene editing approaches have the potential to restore the normal Phe biochemical pathway with a single administration.

There are a number of companies developing nuclease-based gene editing technologies using CRISPR/Cas9, TALENs, meganucleases, Mega-TALs and ZFNs, including Beam Therapeutics, bluebird bio, Caribou Biosciences, Cellectis, CRISPR Therapeutics, Editas Medicine, Intellia Therapeutics, Precision BioSciences and Sangamo Therapeutics and non-nuclease-based technology, including LogicBio Therapeutics.

If Homology were to resume development of its Hunter syndrome HMI-203 product candidate and it were to be approved, it may compete with approved products, such as IZCARGO(R), a blood-brain-barrier-penetrating recombinant iduronate-2-sulfatase approved in Japan, Elaprase®, an enzyme replacement therapy, or ERT, from Takeda, and Hunterase ICV Injection, an ERT from GC Pharma, as well as investigational product candidates from Avrobio, Denali Therapeutics and REGENXBIO. However, Homology believes that only an I.V. gene therapy approach with the ability to cross the blood-brain-barrier has the potential to treat the peripheral and neurological manifestations.

If Homology were to resume development of its MLD HMI-204 product candidate and it were to be approved, it may compete with approved products, such as Libmeldy, a lentiviral vector-based *ex vivo* gene

therapy from Orchard Therapeutics, which is approved in the EU and a select group of additional countries for the treatment of MLD in pre-symptomatic and early symptomatic patients, as well as investigational product candidates from Takeda and Passage Bio. Homology believes that its optimized *in vivo* gene therapy approach for MLD could be used early in the disease progression with the potential for earlier protein expression, potentially offering advantages over Orchard Therapeutics' *ex vivo* approach, as well as advantages over chronic, intrathecal ERTs, such as Takeda's approach.

In addition, many of Homology's current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials and marketing approved products. Homology has paused development of each of its product candidates. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries may result in even more resources being concentrated among a smaller number of Homology's competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with Homology in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, Homology's programs. Homology's competitors may also develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that Homology may develop in the future. The key competitive factors affecting the success of all of Homology's programs are likely to be their efficacy, safety, convenience and availability of reimbursement.

Furthermore, Homology has relied upon a combination of patents and trade secret protection, as well as license and confidentiality agreements to protect the intellectual property related to its proprietary technologies, product candidate development programs and product development candidates. Homology's success has depended in large part on its ability to secure and maintain patent protection in the United States and other countries with respect to Homology's former and any future product development candidates. Moreover, Homology's industry is characterized by the existence of large numbers of patents and frequent allegations of patent infringement. If, therefore, Homology is unable to obtain and maintain patent protection for its technology and products or if the scope of the patent protection obtained or in-licensed is not sufficiently broad or if the validity of such patent is threatened, it could create opportunities for competitors to enter the market or dissuade other companies from collaborating with it to develop products and technology, any of which would hurt Homology's competitive position and could impair its ability to successfully commercialize its product development candidates in the future. For more information regarding these competitive risks, see Item 1A. "Risk Factors—Risks Related to Homology's Intellectual Property."

Intellectual Property

Homology's success depended in large part upon its ability to secure and maintain proprietary protection for its technologies and products and to operate without infringing the proprietary rights of others. Homology's policy is to protect its proprietary position by, among other methods, filing, or collaborating with its licensors to file, U.S. and foreign patent applications related to its proprietary technology, inventions, and improvements and trademarks that are important to the development and implementation of its business. Homology requires employees who are inventors on any company-owned patent applications to assign the rights to it. Also, Homology uses other forms of protection, particularly where it does not believe patent protection is appropriate or obtainable. Homology relies on trade secrets, technical know-how, and continuing innovation to develop and maintain its competitive advantage. In addition, Homology relies on confidentiality agreements with its employees, consultants, and other advisors to protect its proprietary information. Homology's policy is to require third parties that receive material confidential information to enter into confidentiality agreements with it.

Homology's patent portfolio includes a combination of issued patents and pending patent applications that are licensed from third parties. Homology is exploring strategic alternatives for certain of its programs and the related intellectual property, and is in the process of abandoning non-core intellectual property.

For any individual patent, the term depends on the applicable law in the country in which the patent is granted. In most countries where Homology has filed patent applications or in-licensed patents and patent applications, patents have a term of 20 years from the application filing date or earliest claimed non-provisional priority date. In the United States, the patent term is 20 years but may be shortened if a patent is terminally disclaimed over another patent that expires earlier. The term of a U.S. patent may also be lengthened by a patent term adjustment, in order to address administrative delays by the United States Patent and Trademark Office in granting a patent.

In the United States, the term of a patent that covers an FDA-approved drug or biologic may be eligible for patent term extension in order to restore the period of a patent term lost during the premarket FDA regulatory review process. The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the natural expiration of the patent. The patent term restoration period is generally equal to the regulatory review period for the approved product which period occurs after the date the patent issued, subject to certain exceptions. Only one patent may be extended for a regulatory review period for any product, and the application for the extension must be submitted prior to the expiration of the patent. In the future, Homology may decide to apply for restoration of patent term for one of its currently owned or licensed patents to extend its current expiration date, depending on the expected length of the clinical studies and other factors involved in the filing of the relevant Biologics License Application, or BLA. Similarly, certain foreign jurisdictions also have mechanisms for extending patent term and, to the extent Homology has granted patents that are eligible, Homology may decide to apply for patent term extensions in those jurisdictions.

U.S. Patent Term Restoration and Marketing Exclusivity

Depending upon the timing, duration and specifics of the FDA approval of the use of Homology's product candidates, some of Homology's U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally equal to the regulatory review period for the approved product which period occurs after the date the patent issued, subject to certain exceptions. Only one patent may be extended for a regulatory review period for any product, and the application for the extension must be submitted prior to the expiration of the patent. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, Homology may intend to apply for restoration of patent term for one of Homology's currently owned or licensed patents to extend its current expiration date, depending on the expected length of the clinical studies and other factors involved in the filing of the relevant BLA.

For patents that might expire during the BLA review phase, the patent owner may request an interim patent term extension. If eligible, an interim patent term extension may be granted for a period of not more than one year. The patent owner may apply for not more than four subsequent interim extensions. Any interim extension granted will not be longer than the maximum period of extension allowed post-approval.

Licensed Intellectual Property

Certain of Homology's issued patents and pending patent applications are exclusively licensed to it from COH.

The City of Hope Portfolio

In April 2016, Homology exclusively licensed two families of patents and patent applications directed to novel AAV capsids and their manufacture and methods of use, including their use in genome editing from COH.

These two families of patents and patent applications together include thirteen granted patents in the United States, seven foreign granted patents, and 15 pending applications in the United States, Europe, Canada, Australia and other selected countries in Latin America and Asia. The first family of issued patents and patent applications relates to Homology's novel AAV vectors and their use in cellular transduction. The ten issued U.S. patents in this family are expected to expire in 2031 and may be extended by up to five years in the United States via patent term extension depending on the regulatory pathway of the products covered by such patents. The second family includes three issued U.S. patents relating to Homology's AAV vectors and their use in genome editing. The issued patents in this family are expected to expire in 2035 and may be extended by up to five years in the United States and in certain other countries via patent term extension depending on the regulatory pathway of the products covered by such patents.

Trademarks

Homology's trademarks Homology Medicines, HMI, the H logo, the HOMOLOGY MEDICINES, INC. logo and AMENDR, are pending or registered in the United States and/or certain international countries. As of September 30, 2023, Homology owned three registered trademarks and two pending trademark applications in the United States, 38 registered foreign trademarks, and seven pending foreign trademark applications.

Strategic Collaborations

City of Hope License Agreement

In April 2016, Homology entered into an exclusive license agreement with City of Hope, or COH, pursuant to which COH granted Homology an exclusive, sublicensable, worldwide license to certain AAV vector-related patents and know-how owned by COH to develop, manufacture, use and commercialize products and services covered by such patents and know-how in any and all fields. COH also granted Homology a non-exclusive, sublicensable, worldwide license to certain background patents owned by COH to develop, manufacture, use and commercialize licensed products and licensed services in any and all fields.

Under the agreement, Homology paid COH an initial licensing fee of $75,000, and made a subsequent payment of $4.5 million representing a percentage of sublicensing revenue. Homology is also required to pay COH an annual license maintenance fee; up to a total of $3.2 million in potential milestone fees; a royalty in the low single-digit percentages on net sales of licensed products or services, subject to certain reductions in certain circumstances, with a certain annual minimum royalty; and low double-digit percentages of sublicensing revenues. As partial consideration for the licenses granted under the agreement, Homology issued 154,837 shares of its common stock to COH.

The COH agreement will expire on a country-by-country and on a licensed patent-by-licensed patent basis upon the expiration of the last-to-expire valid claim of such patent in such country. Homology agreed to use commercially reasonable efforts to develop and commercialize licensed products and licensed services. If Homology fails to achieve certain diligence milestones, COH may terminate the agreement or convert the exclusive rights under the agreement from exclusive to non-exclusive. Either party may terminate the agreement in the event of the other party's material breach, subject to an opportunity to cure, and in the event of the other party's bankruptcy or insolvency. Homology may terminate the agreement for convenience.

On August 6, 2021, Homology received notice from COH that Homology did not accomplish at least one of the partnering milestones by the applicable deadline, as set forth in the COH License. This notice does not affect Homology's exclusive license in the field of mammalian therapeutics, including all human therapeutics, associated diagnostics, and target validation, or the Mammalian Therapeutic Field, where Homology retains exclusive rights. Instead, the notice served as written notice that the exclusive license granted pursuant to the COH License in all fields except the Mammalian Therapeutic Field converted from exclusive to non-exclusive effective as of September 20, 2021, which was forty-five days from the receipt of notice. In connection with the

conversion, any royalty obligations and sublicensee fees relating to fields outside of the Mammalian Therapeutic Field shall be reduced by a certain percentage. This change to Homology's exclusive worldwide license with COH does not impact any of Homology's therapeutic product candidates, including HMI-102, HMI-103, HMI-203, HMI-204 and HMI-104.

Government Regulation and Product Approval

Governmental authorities in the U.S., at the federal, state and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, labeling, packaging, promotion, storage, advertising, distribution, marketing, post-approval monitoring and reporting and export and import of products. The processes for obtaining regulatory approvals in the United States and in foreign countries and jurisdictions, along with subsequent compliance with applicable statutes and regulations and other regulatory authorities, are extensive and require the expenditure of substantial time and financial resources. For the purposes of this Section, the term "gene therapy" includes both traditional gene therapy products as well as gene editing and Homology's gene integration product candidates.

FDA Approval Process

If Homology resumes development of its product candidates, Homology expects its product candidates to be regulated as biologics. Biological products, including gene therapy products, are subject to extensive regulation by the FDA under the Federal Food, Drug, and Cosmetic Act, or FDCA, and the Public Health Service Act, or PHS Act, and other federal, state, local and foreign statutes and regulations. Both the FDCA and the PHS Act and their corresponding regulations govern, among other things, the research, development, safety, testing, packaging, manufacture, storage, recordkeeping, approval, labeling, promotion and marketing, distribution, post-approval monitoring and reporting, sampling, and import and export of biological products.

Homology, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which Homology wishes to conduct studies or seek approval or licensure of its product candidates. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources.

U.S. Biological Products Development Process

The process required by the FDA before a biologic may be marketed in the United States generally involves the following:

- completion of extensive nonclinical, sometimes referred to as preclinical laboratory tests, animal studies and formulation studies in accordance with applicable regulations, including good laboratory practices, or GLP, requirements;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent Institutional Review Board, or IRB, or ethics committee at each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials according to good clinical practice, or GCP, requirements and any additional requirements needed for the protection of human research subjects and their health information, to establish the safety and efficacy of the proposed biological product for its intended use;
- preparation and submission to the FDA of a BLA for marketing approval that includes substantive evidence of safety, purity and potency from results of nonclinical testing and clinical trials;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;

- completion of an FDA Advisory Committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the biological product is produced to assess compliance with GMP to assure that the facilities, methods and controls are adequate to preserve the biological product's identity, strength, quality and purity;
- potential FDA audit of the nonclinical and clinical study sites that generated the data in support of the BLA; and
- FDA review and approval, or licensure, of the BLA.

Before testing any biological product candidate, including a gene therapy product candidate, in humans, the product candidate enters the preclinical testing stage. Preclinical tests, also referred to as nonclinical studies, include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies to assess the potential safety and activity of the product candidate. The conduct of the preclinical tests must comply with federal regulations and requirements, including GLP.

The clinical study sponsor must submit the results of the preclinical tests, together with manufacturing and controls, information about product chemistry, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of an IND. An IND is a request for authorization from the FDA to administer an investigational new drug to humans. Some preclinical testing, such as reproductive toxicity tests and carcinogenicity in animals, may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, after which human clinical trials may begin unless the FDA places the clinical study on a clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical study can begin.

In addition to the IND submission process, under the National Institutes of Health, or NIH, Guidelines for Research Involving Recombinant DNA Molecules, or the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials involve the administration of the biological product candidate to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the study sponsor's control. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical study, dosing procedures, subject selection and exclusion criteria, the efficacy measurements to be evaluated and the parameters to be used to monitor subject safety, including stopping rules that assure a clinical study will be stopped if certain adverse events should occur. Each protocol and any amendments to the protocol must be submitted to the FDA as part of the IND. Clinical trials must be conducted and monitored in accordance with the FDA's regulations comprising the GCP requirements, including the requirement that all research subjects provide informed consent. Further, each clinical study must be reviewed and approved by an independent IRB or ethics committee at or servicing each institution at which the clinical study will be conducted. An IRB is charged with protecting the welfare and rights of study participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the form and content of the informed consent that must be signed by each clinical study subject or his or her legal representative and must monitor the clinical study until completed. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board or a data monitoring committee, which provides guidance for whether or not a study may move forward at designated check points based on access to certain data

from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- Phase 1. The biological product candidate is initially introduced into healthy human subjects and tested for safety. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.
- Phase 2. The biological product candidate is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- Phase 3. The biological product candidate is further evaluated for dosage, clinical efficacy, potency, and safety in an expanded patient population, generally at geographically dispersed clinical study sites. These clinical trials are intended to establish the overall risk/benefit ratio of the product and provide an adequate basis for product labeling.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may also be made a condition to approval of the BLA.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data, and clinical study investigators. Annual progress reports detailing the results of the clinical trials and nonclinical studies performed since the last progress report, among other information, must be submitted to the FDA. Written IND safety reports must be promptly submitted to the FDA and the investigators for serious and unexpected adverse events, any findings from other trials, tests in laboratory animals or *in vitro* testing that suggest a significant risk for human subjects, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information. The FDA or the sponsor or its data safety monitoring board may suspend or permanently discontinue a clinical study at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk or the clinical study is not being conducted in accordance with FDA regulations. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the biological product candidate has been associated with unexpected serious harm to patients. The FDA and the IRB may also halt, terminate or impose other conditions if either believes the patients are subject to unacceptable risk.

Concurrent with clinical trials, companies usually complete additional animal trials and must also develop additional information about the physical characteristics of the biological product candidate as well as finalize a process for manufacturing the product in commercial quantities in accordance with GMP requirements. To help reduce the risk of the introduction of adventitious agents with use of biological products, the PHS Act emphasizes the importance of manufacturing control for products whose attributes cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must develop methods for testing the identity, strength, quality, potency and purity of the final biological product. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the biological product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

After the completion of clinical trials of a biological product candidate, FDA approval of a BLA must be obtained before commercial marketing and distribution of the biological product. The BLA must include results of product development, laboratory and animal trials, human trials, information on the manufacture, pharmacology, chemistry and controls of the product, proposed labeling and other relevant information. In addition, under the Pediatric Research Equity Act, or PREA, a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the biological product candidate for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The sponsor or FDA may request a deferral of pediatric clinical trials for some or all of the pediatric subpopulations. A deferral may be granted for several reasons, including a finding that the drug or biologic is ready for approval for use in adults before pediatric clinical trials are complete or that additional safety or effectiveness data needs to be collected before the pediatric clinical trials begin. Unless otherwise required by regulation, PREA does not apply to any biological product for an indication for which orphan designation has been granted.

Under the Prescription Drug User Fee Act, or PDUFA, as amended, each BLA must be accompanied by a user fee. The FDA adjusts the PDUFA user fees on an annual basis. PDUFA also imposes an annual program fee for marketed products. Fee waivers or reductions are available in certain circumstances, including a waiver of the application fee for the first human drug application filed by a small business. Additionally, no user fees are assessed on BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

Within 60 days following submission of the application, the FDA reviews the submitted BLA to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review of the BLA. Under PDUFA, the FDA has agreed to certain performance goals to complete the review of BLAs. For example, the FDA may give a priority review to BLAs submitted for biological products that are designed to treat a serious or life-threatening disease or condition, and if approved, would offer a significant improvement in safety or efficacy compared to marketed products. A priority review means that the goal for the FDA to review an application is six months, rather than the standard review of ten months under current PDUFA guidelines. Under the current PDUFA agreement, these six-and ten-month review periods are measured from the “filing” date rather than the receipt date for original BLAs, which typically adds approximately two months to the timeline for review and decision from the date of submission.

The FDA reviews the BLA to determine, among other things, whether the proposed product is safe, pure and potent, or effective, for its intended use, and whether the product is being manufactured in accordance with GMP requirements to assure and preserve the product’s identity, safety, strength, quality, potency and purity. The FDA may refer applications for novel biological products or biological products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving a BLA, the FDA will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with GMP requirements and are adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with GCP.

After the FDA evaluates a BLA, conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced and conducts inspections at select clinical sites, the FDA may

issue an approval letter or a Complete Response Letter, or CRL. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A CRL will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the CRL without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the CRL, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its potential risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. The requirement for a REMS can materially affect the potential market and profitability of the product.

Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. Changes to some of the conditions established in an approved BLA, including changes in indications, product labeling, manufacturing processes or facilities, require submission and FDA approval of a new BLA or BLA supplement before the change can be implemented. A BLA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing BLA supplements as it does in reviewing BLAs. The FDA may require one or more post-market studies or surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Orphan Drug Designation

The FDA may grant orphan drug designation to drugs or biologics intended to treat a rare disease or condition that affects fewer than 200,000 individuals in the United States, or if it affects more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and marketing the drug or biologic for this type of disease or condition will be recovered from its sales in the United States. Orphan product designation must be requested before submitting a BLA. After the FDA grants orphan product designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan product designation does not convey any advantage in or shorten the duration of the regulatory review and approval process.

In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and BLA user-fee waivers. In addition, if a product receives the first FDA approval for the disease or condition for which it has orphan designation, the product is entitled to orphan drug exclusivity, which means the FDA may not approve any other application, including a full BLA, to market the same drug or biologic for the same disease or condition for a period of seven years, except in limited circumstances, such as a showing of clinical superiority over the product with orphan exclusivity or where the manufacturer with orphan exclusivity is unable to assure sufficient quantities of the approved orphan-designated product. Competitors, however, may receive approval of different products for the disease or condition for which the orphan product has exclusivity or obtain approval for the same product but for a different disease or condition for which the orphan product has exclusivity. Orphan product exclusivity also could block

the approval of a product for seven years if a competitor obtains approval of the same biological product as defined by the FDA or if such product candidate is determined to be contained within the competitor's product for the same condition or disease. If a drug or biological product designated as an orphan product receives marketing approval for a disease or condition broader than what is designated, it may not be entitled to orphan product exclusivity. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Rare Pediatric Disease Priority Review Voucher Program

In 2012, Congress authorized the FDA to award priority review vouchers to sponsors of certain rare pediatric disease product applications. This program is designed to encourage development of new drug and biological products for prevention and treatment of certain rare pediatric diseases. Specifically, under this program, a sponsor who receives an approval for a drug or biologic for a "rare pediatric disease" may qualify for a voucher that can be redeemed to receive a priority review of a subsequent marketing application for a different product. The sponsor of a rare pediatric disease drug product receiving a priority review voucher may transfer (including by sale) the voucher to another sponsor. The voucher may be further transferred any number of times before the voucher is used, as long as the sponsor making the transfer has not yet submitted the application. The FDA may also revoke any priority review voucher if the rare pediatric disease drug for which the voucher was awarded is not marketed in the U.S. within one year following the date of approval.

For purposes of this program, a "rare pediatric disease" is a (a) serious or life-threatening disease in which the serious or life-threatening manifestations primarily affect individuals aged from birth to 18 years, including age groups often called neonates, infants, children, and adolescents; and (b) rare diseases or conditions within the meaning of the Orphan Drug Act. Congress has only authorized the Rare Pediatric Disease Priority Review Voucher program until September 30, 2024. Consequently, sponsors of marketing applications approved after that date will not receive the voucher unless Congress reauthorizes the Rare Pediatric Disease Priority Review Voucher program before that time. However, even if the program is not reauthorized, if a drug candidate receives Rare Pediatric Disease Designation before October 1, 2024, the sponsor of the marketing application for such drug will be eligible to receive a voucher if the application for the designated drug is approved by the FDA before October 1, 2026.

Expedited Development and Review Programs

The FDA has a Fast Track program that is intended to expedite or facilitate the process for reviewing new biological products that meet certain criteria. Specifically, biological products are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast Track designation applies to the combination of the product candidate and the specific indication for which it is being studied. The sponsor of a biologic product candidate may request that the FDA designate the biologic as a Fast Track product at any time during the clinical development of the product. The FDA must determine if the biologic product candidate qualifies for Fast Track designation within 60 days of receipt of the sponsor's request. With regard to a Fast Track product, the FDA may consider for review sections of the marketing application on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the application, the FDA agrees to accept sections of the application and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the application.

A biological product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for Breakthrough Therapy designation to expedite its development and review. A biologic can receive Breakthrough Therapy designation if preliminary clinical evidence indicates that the biologic, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in

clinical development. The designation includes all of the Fast Track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product candidate, including involvement of senior managers.

Any product candidate submitted to the FDA for marketing, including a product candidate with a Fast Track designation or Breakthrough Therapy designation, may be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A BLA is eligible for priority review if the biological product candidate has the potential to treat a serious or life-threatening condition and, if approved, would provide a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new biological product designated for priority review in an effort to facilitate the review. Additionally, a product candidate may be eligible for accelerated approval. Biological product candidates studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may be eligible for accelerated approval, which means that such product candidates be approved on the FDA's determination that the product candidate has an effect on a surrogate endpoint that is reasonably likely to predict a clinical benefit, or on the basis of an effect on a clinical endpoint other than survival or irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require that a sponsor of a biological product receiving accelerated approval perform adequate and well-controlled confirmatory clinical studies to verify and describe the predicted clinical benefit and, under FDORA, the FDA may require, as appropriate, that such trials be underway prior to approval or within a specific time period after the date of approval for a product granted accelerated approval. Failure to conduct required confirmatory trials in a timely manner, or to verify a clinical benefit during such confirmatory trials, will allow the FDA to withdraw the approved biologic product from the market on an expedited basis. In addition, the FDA generally requires, unless otherwise informed by the agency, pre-approval of promotional materials for products approved under the accelerated approval pathway, which could adversely impact the timing of the commercial launch of the product.

Moreover in 2017, the FDA established the Regenerative Medicine Advanced Therapy, or RMAT, designation as part of its implementation of the 21st Century Cures Act. An investigational drug is eligible for RMAT designation if: (1) it meets the definition of a regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious disease or condition; and (3) preliminary clinical evidence indicates that the investigational drug has the potential to address unmet medical needs for such disease or condition. In a February 2019 final guidance, the FDA also stated that certain gene therapies that lead to a sustained effect on cells or tissues may meet the definition of a regenerative medicine therapy. RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate, and eligibility for rolling review of BLAs and priority review. Product candidates granted RMAT designation may also be eligible for accelerated approval if the relevant statutory conditions are met.

Fast Track designation, priority review, RMAT designation and Breakthrough Therapy designation do not change the standards for approval but may expedite the development or approval process. Even if Homology receives one or both of these designations for its product candidates, the FDA may later decide that Homology's product candidates no longer meet the conditions for qualification. In addition, receiving these designations may not provide Homology with a material commercial advantage.

Post-Approval Requirements

Maintaining substantial compliance with applicable federal, state, and local statutes and regulations requires the expenditure of substantial time and financial resources. Rigorous and extensive FDA regulation of biological products continues after approval, particularly with respect to GMP requirements, record-keeping, reporting of

adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. Biological product manufacturers and other entities involved in the manufacture and distribution of approved biological products are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with GMP requirements and other laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain GMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved BLA, including withdrawal of the product from the market. In addition, changes to the manufacturing process or facility generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

After a BLA is approved, the product also may be subject to official lot release. As part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products, such as viral vaccines, before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency, and effectiveness of biological products.

To help reduce the increased risk of the introduction of adventitious agents, the PHS Act emphasizes the importance of manufacturing controls for products whose attributes cannot be precisely defined. The PHS Act also provides authority to the FDA to immediately suspend biologics licenses in situations where there exists a danger to public health, to prepare or procure products in the event of shortages and critical public health needs, and to authorize the creation and enforcement of regulations to prevent the introduction or spread of communicable diseases within the United States.

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are consistent with the provisions of the FDA-approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Discovery of previously unknown problems or the failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant or manufacturer to administrative or judicial civil or criminal sanctions and adverse publicity. FDA sanctions could include refusal to approve pending applications, withdrawal of an approval, clinical hold, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, mandated corrective advertising or communications with doctors, debarment, restitution, disgorgement of profits, or civil or criminal penalties.

Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, or Affordable Care Act, signed into law on March 23, 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

Other Healthcare Laws and Compliance Requirements

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims and transparency laws and regulations regarding drug pricing and payments and other transfers of value made to physician and other licensed healthcare professionals. If their operations are found to be in violation of any of such laws or any other governmental regulations that apply, they may be subject to penalties, including, without limitation, civil and criminal penalties, damages, fines, the curtailment or restructuring of operations, exclusion from participation in federal and state healthcare programs and individual imprisonment. See section entitled *"Risk Factors—Risks Related to Healthcare Laws and Other Legal Compliance Matters—Homology's business operations and current and future relationships with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers will be subject to applicable healthcare regulatory laws, which could expose Homology to penalties."*

Moreover, analogous state and foreign laws and regulations may be broader in scope than the provisions described above and may apply regardless of payor. These laws and regulations may differ from one another in significant ways, thus further complicating compliance efforts. For instance, in the European Union, or EU, many EU member states have adopted specific anti-gift statutes that further limit commercial practices for medicinal products, in particular vis-à-vis healthcare professionals and organizations. Additionally, there has been a recent trend of increased regulation of payments and transfers of value provided to healthcare professionals or entities and many EU member states have adopted national "Sunshine Acts" which impose reporting and transparency requirements (often on an annual basis), similar to the requirements in the United States, on pharmaceutical companies. Certain countries also mandate implementation of commercial compliance programs, or require disclosure of marketing expenditures and pricing information. Violation of any of such laws or any other governmental regulations that apply may result in penalties, including, without limitation, significant administrative, civil and criminal penalties, damages, fines, disgorgement, additional reporting obligations and oversight if a manufacturer becomes subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, the curtailment or restructuring of operations, exclusion from participation in governmental healthcare programs and imprisonment.

Coverage and Reimbursement

Sales of any product depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement for such product by third-party payors. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. These third-party payors are increasingly reducing reimbursements for medical products, drugs and services. Moreover, for drugs and biologics administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such products. In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales. See section entitled *"Risk Factors—Risks Related to Healthcare Laws and Other Legal Compliance Matters—The successful commercialization of Homology's product candidates will depend in part on the extent to which governmental authorities and health insurers establish adequate coverage, reimbursement levels and pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for Homology's product candidates, if approved, could limit Homology's ability to market those products and decrease its ability to generate revenue."*

In addition, in many countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing and reimbursement vary widely from country to country. In the EU, governments influence the price of products through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Member states are free to restrict the range of pharmaceutical products for which their national health insurance systems provide reimbursement, and to control the prices and reimbursement levels of pharmaceutical products for human use. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed to by the government. Member states may approve a specific price or level of reimbursement for the pharmaceutical product, or alternatively adopt a system of direct or indirect controls on the profitability of the company responsible for placing the pharmaceutical product on the market, including volume-based arrangements, caps and reference pricing mechanisms. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of Homology's products. The downward pressure on healthcare costs in general, particularly prescription products, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross border imports from low priced markets exert a commercial pressure on pricing within a country.

Healthcare Reform

The United States and several other jurisdictions are considering, or have already enacted, a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell any of our product candidates profitably, if approved. Among policy-makers and payers in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access to healthcare. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. There have been, and likely will continue to be, legislative and regulatory proposals at the federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. See section entitled "*Risk Factors – Risks Related to Healthcare Laws and Other Legal Compliance*

Matters – If Homology resumes development of its product candidates, enacted and future healthcare legislation could increase the difficulty and cost for Homology to obtain marketing approval of and commercialize its product candidates and may affect the prices Homology may set."

The continuing efforts of the government, insurance companies, managed care organizations and other payers of healthcare services to contain or reduce costs of healthcare may adversely affect:

- the demand for any of our product candidates, if approved;
- the ability to set a price that we believe is fair for any of our product candidates, if approved;
- our ability to generate revenues and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical and biologic products. We cannot be sure whether additional legislative changes will be enacted, or whether FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our product candidates. There has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs.

Similar political, economic and regulatory developments are occurring in the EU and may affect the ability of pharmaceutical companies to profitably commercialize their products. In addition to continuing pressure on prices and cost containment measures, legislative developments at the EU or member state level may result in significant additional requirements or obstacles. The delivery of healthcare in the EU, including the establishment and operation of health services and the pricing and reimbursement of medicines, is almost exclusively a matter for national, rather than EU, law and policy. National governments and health service providers have different priorities and approaches to the delivery of health care and the pricing and reimbursement of products in that context. In general, however, the healthcare budgetary constraints in most EU member states have resulted in restrictions on the pricing and reimbursement of medicines by relevant health service providers. Coupled with ever-increasing EU and national regulatory burdens on those wishing to develop and market products, this could restrict or regulate post-approval activities and affect the ability of pharmaceutical companies to commercialize their products. In international markets, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies.

On December 13, 2021, Regulation No 2021/2282 on Health Technology Assessment, or HTA, amending Directive 2011/24/EU, was adopted in the EU. While the regulation entered into force in January 2022, it will only begin to apply from January 2025 onwards, with preparatory and implementation-related steps to take place in the interim. Once the regulation becomes applicable, it will have a phased implementation depending on the concerned products. This regulation intends to boost cooperation among EU member states in assessing health technologies, including new medicinal products, and providing the basis for cooperation at the EU level for joint clinical assessments in these areas. The regulation will permit EU member states to use common HTA tools,

methodologies, and procedures across the EU, working together in four main areas, including joint clinical assessment of the innovative health technologies with the most potential impact for patients, joint scientific consultations whereby developers can seek advice from HTA authorities, identification of emerging health technologies to identify promising technologies early, and continuing voluntary cooperation in other areas. Individual EU member states will continue to be responsible for assessing non-clinical (e.g., economic, social, ethical) aspects of health technology, and making decisions on pricing and reimbursement.

We expect that the healthcare reform measures that have been adopted and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product and could seriously harm our future revenues. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our products.

Data Privacy and Security Laws

Numerous state, federal and foreign laws, including consumer protection laws and regulations, govern the collection, dissemination, use, access to, confidentiality and security of personal information, including health-related information. In the United States, numerous laws and regulations, including data breach notification laws, health information privacy and security laws, and consumer protection laws and regulations that govern the collection, use, disclosure, and protection of health-related and other personal information and could apply to Homology's operations or the operations of Homology's partners. In addition, certain foreign laws govern the privacy and security of personal data, including health-related data. Failure to comply with these laws, where applicable, can result in the imposition of significant civil and/or criminal penalties and private litigation. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to complicate compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect Homology's business. These and other laws govern Homology's use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, its operations. If Homology's operations result in contamination of the environment or expose individuals to hazardous substances, Homology could be liable for damages and governmental fines. Homology believes that it is in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on its business. Homology cannot predict, however, how changes in these laws may affect its future operations.

Government Regulation Outside of the United States

In addition to regulations in the United States, Homology may be subject to a variety of regulations in other jurisdictions, for instance in the European Union, or EU, governing, among other things, clinical trials, marketing authorizations, post-marketing authorization requirements and any commercial sales and distribution of Homology's products. Because biologically sourced raw materials are subject to unique contamination risks, their use may be restricted in some countries.

In addition, ethical, social and legal concerns about gene-editing technology, gene therapy, genetic testing and genetic research could result in additional regulations restricting or prohibiting the processes Homology may use. Whether or not Homology obtains FDA approval of a product, Homology must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product

in those countries. The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. Failure to comply with applicable foreign regulatory requirements, may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Non-clinical Studies and Clinical Trials

Similarly to the United States, the various phases of non-clinical and clinical research in the EU are subject to significant regulatory controls.

Non-clinical studies are performed to demonstrate the health or environmental safety of new chemical or biological substances. Non-clinical (pharmaco-toxicological) studies of medicinal products must be conducted in compliance with the principles of good laboratory practice, or GLP, as set forth in EU Directive 2004/10/EC (unless otherwise justified for certain particular medicinal products – e.g., radio-pharmaceutical precursors for radio-labelling purposes). Such GLP standards reflect the Organization for Economic Co-operation and Development requirements.

Clinical trials of medicinal products in the EU must be conducted in accordance with EU and national regulations and the International Conference on Harmonization, or ICH, guidelines on Good Clinical Practices, or GCP, as well as the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki. Additional GCP guidelines from the EC, focusing in particular on traceability, apply to clinical trials of advanced therapy medicinal products, or ATMPs. If the sponsor of the clinical trial is not established within the EU, it must appoint an EU entity to act as its legal representative. The sponsor must take out a clinical trial insurance policy, and in most EU member states, the sponsor is liable to provide 'no fault' compensation to any study subject injured in the clinical trial.

The regulatory landscape related to clinical trials in the EU has been subject to recent changes. The EU Clinical Trials Regulation, or CTR, which was adopted in April 2014 and repealed the EU Clinical Trials Directive, became applicable on January 31, 2022. Unlike directives, the CTR is directly applicable in all EU member states without the need for member states to further implement it into national law. The CTR notably harmonizes the assessment and supervision processes for clinical trials throughout the EU via a Clinical Trials Information System, which contains a centralized EU portal and database.

While the Clinical Trials Directive required a separate clinical trial application, or CTA, to be submitted in each member state in which the clinical trial was to take place, to both the competent national health authority and an independent ethics committee, much like the FDA and IRB respectively, the CTR introduces a centralized process and only requires the submission of a single application for multi-center trials. The CTR allows sponsors to make a single submission to both the competent authority and an ethics committee in each member state, leading to a single decision per member state. The CTA must include, among other things, a copy of the trial protocol and an investigational medicinal product dossier containing information about the manufacture and quality of the medicinal product under investigation. The assessment procedure of the CTA has been harmonized as well, including a joint assessment by all member states concerned, and a separate assessment by each member state with respect to specific requirements related to its own territory, including ethics rules. Each member state's decision is communicated to the sponsor via the centralized EU portal. Once the CTA is approved, clinical study development may proceed.

The CTR provides for a three-year transition period. Clinical trials for which an application was submitted (i) prior to January 31, 2022 under the Clinical Trials Directive, or (ii) between January 31, 2022 and January 31, 2023 and for which the sponsor has opted for the application of the Clinical Trials Directive remain governed by said Clinical Trials Directive until January 31, 2025. After this date, all clinical trials (including those which are ongoing) will become subject to the provisions of the CTR.

Medicines used in clinical trials must be manufactured in accordance with Good Manufacturing Practice, or GMP. Other national and EU-wide regulatory requirements may also apply.

During the development of a medicinal product, the European Medicines Agency, or EMA, and national regulators provide the opportunity for dialogue and guidance on the development program. At the EMA level, this is usually done in the form of scientific advice, which is given by the Scientific Advice Working Party of the Committee for Medicinal Products for Human Use, or CHMP. A fee is incurred with each scientific advice procedure. Advice from the EMA is typically provided based on questions concerning, for example, quality (chemistry, manufacturing and controls testing), nonclinical testing and clinical trials, and pharmacovigilance plans and risk-management programs. Advice is not legally binding with regard to any future marketing authorization application of the product concerned.

Marketing Authorization

In order to market Homology's product candidates in the EU and many other foreign jurisdictions, Homology must obtain separate regulatory approvals. In the EU, medicinal products can only be placed on the market after obtaining a marketing authorization, or MA. The process for obtaining an MA in the EU depends, among other things, on the nature of the medicinal product. There are two types of MAs.

"Centralized MAs" are issued by the EC through the centralized procedure, based on the opinion of the EMA's CHMP, and are valid across the entire territory of the EU. The centralized procedure is compulsory for certain types of product candidates such as: (i) medicinal products derived from biotechnology processes, such as genetic engineering, (ii) medicinal products containing a new active substance indicated for the treatment of certain diseases, such as HIV/AIDS, cancer, diabetes, neurodegenerative diseases, autoimmune and other immune dysfunctions and viral diseases, (iii) designated orphan medicines and (iv) ATMPs (*i.e.*, gene therapy, somatic cell therapy or tissue-engineered medicines). The centralized procedure is optional for product candidates containing a new active substance not yet authorized in the EU, or for product candidates that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU. It is very likely that the centralized procedure would apply to the products Homology is developing.

The Committee for Advanced Therapies, or CAT, is responsible in conjunction with the CHMP for the evaluation of ATMPs. The CAT is primarily responsible for the scientific evaluation of ATMPs and prepares a draft opinion on the quality, safety and efficacy of each ATMP for which a marketing authorization application, or MAA, is submitted. The CAT's opinion is then considered by the CHMP when giving its final recommendation regarding the authorization of a product in view of the balance of benefits and risks identified. Although the CAT's draft opinion is submitted to the CHMP for final approval, the CHMP may depart from the draft opinion, if it provides detailed scientific justification. The CHMP and CAT are also responsible for providing guidelines on ATMPs and have published numerous guidelines, including specific guidelines on gene therapies and cell therapies. These guidelines provide additional guidance on the factors that the EMA will consider in relation to the development and evaluation of ATMPs and include, among other things, the preclinical studies required to characterize ATMPs; the manufacturing and control information that should be submitted in an MAA; and post-approval measures required to monitor patients and evaluate the long-term efficacy and potential adverse reactions of ATMPs.

Under the centralized procedure, the maximum timeframe for the evaluation of an MAA by the EMA is 210 days. This excludes so-called clock stops, during which additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP. At the end of the review period, the CHMP provides an opinion to the EC. If this opinion is favorable, the EC may then adopt a decision to grant an MA.

In exceptional cases, the CHMP might perform an accelerated review of an MAA in no more than 150 days (not including clock stops). Innovative products that target an unmet medical need and are expected to be of major public health interest may be eligible for a number of expedited development and review programs, such as the PRIME scheme, which provides incentives similar to the breakthrough therapy designation in the U.S. PRIME is a voluntary scheme aimed at enhancing the EMA's support for the development of medicines that target unmet medical needs. It is based on increased interaction and early dialogue with companies developing promising medicines, to optimize their product development plans and speed up their evaluation to help them reach patients

earlier. Many benefits accrue to sponsors of product candidates with PRIME designation, including but not limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and accelerated MAA assessment once a dossier has been submitted, but this is not guaranteed. Importantly, a dedicated contact and rapporteur from the CHMP is appointed early in the PRIME scheme facilitating increased understanding of the product at the EMA's committee level. An initial meeting initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies.

"National MAs" are issued by the competent authorities of the EU member states, only cover their respective territory, and are available for products not falling within the mandatory scope of the centralized procedure. Where a product has already been authorized for marketing in an EU member state, this national MA can be recognized in another member state through the mutual recognition procedure. If the product has not received a national MA in any member state at the time of application, it can be approved simultaneously in various member state through the decentralized procedure. Under the decentralized procedure an identical dossier is submitted to the national competent authority of each of the member states in which the MA is sought, one of which is selected by the applicant as the reference member state.

Under the above-described procedures, in order to grant the MA, the EMA or the competent authorities of the EU member states make an assessment of the risk benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy. MAs have an initial duration of five years. After these five years, the authorization may be renewed on the basis of a reevaluation of the risk-benefit balance. Once renewed, the MA is valid for an unlimited period unless the EC or the national competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal period.

Moreover, in the EU, a "conditional" MA may be granted in cases where all the required safety and efficacy data are not yet available. The conditional MA is subject to conditions to be fulfilled for generating the missing data or ensuring increased safety measures. It is valid for one year and has to be renewed annually until fulfillment of all the conditions. Once the pending studies are provided, it can become a "standard" MA. However, if the conditions are not fulfilled within the timeframe set by the EMA, the MA ceases to be renewed. Furthermore, an MA may also be granted "under exceptional circumstances" when the applicant can show that it is unable to provide comprehensive data on the efficacy and safety under normal conditions of use even after the product has been authorized and subject to specific procedures being introduced. This may arise in particular when the intended indications are very rare and, in the present state of scientific knowledge, it is not possible to provide comprehensive information, or when generating data may be contrary to generally accepted ethical principles. This MA is close to the conditional MA as it is reserved to medicinal products to be approved for severe diseases or unmet medical needs and the applicant does not hold the complete data set legally required for the grant of an MA. However, unlike the conditional MA, the applicant does not have to provide the missing data and will never have to. Although the MA "under exceptional circumstances" is granted definitively, the risk-benefit balance of the medicinal product is reviewed annually and the MA is withdrawn if the risk-benefit ratio is no longer favorable.

Advanced Therapy Classification

The EMA offers sponsors who are developing ATMPs (*i.e.*, gene therapy, somatic cell therapy or tissue engineered medicines) a variety of benefits similar to those associated with the PRIME scheme, including scientific and regulatory guidance, additional opportunities for dialogue with regulators, and pre-submission review and certification of the chemistry, manufacturing and controls, and nonclinical data proposed for submission in a forthcoming MAA for micro-, small-, or medium-sized enterprises. Companies can consult the EMA to determine whether a medicine they are developing is an ATMP through the ATMP classification procedure.

Data and Marketing Exclusivity

The EU also provides opportunities for data and market exclusivity. Upon receiving an MA, reference products generally receive eight years of data exclusivity and an additional two years of market exclusivity. If granted, the data exclusivity period prevents generic or biosimilar applicants from relying on the preclinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar MA in the EU during a period of eight years from the date on which the reference product was first authorized in the EU. The market exclusivity period prevents a successful generic or biosimilar applicant from commercializing its product in the EU until 10 years have elapsed from the grant of the initial MA for the reference product in the EU. The overall ten-year market exclusivity period may be extended to a maximum of eleven years if, during the first eight years of those ten years, the MA holder obtains an authorization for one or more therapeutic indications, which, during the scientific evaluation prior to their authorization, are held to bring significant clinical benefit over existing therapies. However, there is no guarantee that a product will be considered by the EU regulatory authorities to be a new chemical or biological entity, and products may not qualify for data exclusivity.

There is a special regime for biosimilars, or biological medicinal products that are similar to a reference medicinal product but that do not meet the definition of a generic medicinal product, for example, because of differences in raw materials or manufacturing processes. For such products, the results of appropriate preclinical or clinical trials must be provided, and guidelines from the EMA detail the type and quantity of supplementary data to be provided for different types of biological product. There are no such guidelines for complex biological products, such as gene or cell therapy medicinal products, and so it is unlikely that biosimilars of those products will currently be approved in the EU. However, guidance from the EMA states that they will be considered in the future in light of the scientific knowledge and regulatory experience gained at the time.

Orphan Medicinal Products

The criteria for designating an "orphan medicinal product" in the EU are similar in principle to those in the United States. A medicinal product may be designated as orphan if its sponsor can establish that: (1) the product is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition; (2) either (a) such condition affects no more than five in 10,000 persons in the EU when the application is made, or (b) the product, without the benefits derived from orphan status, would not generate sufficient return in the EU to justify the necessary investment in its development; and (3) there exists no satisfactory method of diagnosis, prevention or treatment of such condition authorized for marketing in the EU, or if such a method exists, the product will be of significant benefit to those affected by the condition.

The application for orphan designation must be submitted before the MAA. An EU orphan designation entitles a party to incentives such as reduction of fees or fee waivers, protocol assistance, and access to the centralized procedure. Upon grant of an MA, orphan medicinal products are entitled to ten years of market exclusivity for the approved therapeutic indication. During the ten-year market exclusivity period, the regulatory authorities cannot accept an MAA, or grant an MA, or accept an application to extend an MA, for the same indication, in respect of a similar medicinal product. The period of market exclusivity is extended by two years for orphan medicinal products that have also complied with an agreed pediatric investigation plan, or PIP. No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications. Orphan designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

The 10-year orphan market exclusivity period may be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for which it received orphan designation, for example, where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity or where the prevalence of the condition has increased above the threshold. Additionally, an MA may be granted to a similar product for the same indication at any time if (1) the second applicant can establish that its product,

although similar, is safer, more effective or otherwise clinically superior to the authorized orphan product; (2) the MA holder for the authorized orphan product consents to a second orphan medicinal product application; or (3) the MA holder for the authorized orphan product cannot supply enough orphan medicinal product.

Pediatric Development

In the EU, MAAs for new medicinal products have to include the results of trials conducted in the pediatric population, in compliance with a PIP agreed with the EMA's Pediatric Committee, or PDCO. The PIP sets out the timing and measures proposed to generate data to support a pediatric indication of the drug for which an MA is being sought. The PDCO can grant a deferral of the obligation to implement some or all of the measures of the PIP until there are sufficient data to demonstrate the efficacy and safety of the product in adults. Further, the obligation to provide pediatric clinical trial data can be waived by the PDCO when these data are not needed or appropriate because the product is likely to be ineffective or unsafe in children, the disease or condition for which the product is intended occurs only in adult populations, or when the product does not represent a significant therapeutic benefit over existing treatments for pediatric patients. Once the MA is obtained in all member states and study results are included in the product information, even when negative, the product is eligible for a six-month supplementary protection certificate, or SPC, extension (provided an application for such extension is made at the same time as filing the SPC application for the product, or at any point up to two years before the SPC expires) or, in the case of orphan pharmaceutical products, a two year extension of the orphan market exclusivity is granted (as described above).

Post-Approval Requirements

Similar to the United States, both MA holders and manufacturers of medicinal products are subject to comprehensive regulatory oversight by the EMA, the EC and/or the competent regulatory authorities of the member states. The holder of an MA must establish and maintain a pharmacovigilance system and appoint an individual qualified person for pharmacovigilance, or QPPV, who is responsible for the establishment and maintenance of that system, and oversees the safety profiles of medicinal products and any emerging safety concerns. Key obligations include expedited reporting of suspected serious adverse reactions and submission of periodic safety update reports, or PSURs.

All new MAAs must include a risk management plan, or RMP, describing the risk management system that the company will put in place and documenting measures to prevent or minimize the risks associated with the product. The regulatory authorities may also impose specific obligations as a condition of the MA. Such risk-minimization measures or post-authorization obligations may include additional safety monitoring, more frequent submission of PSURs, or the conduct of additional clinical trials or post-authorization safety studies.

The advertising and promotion of medicinal products is also subject to laws concerning promotion of medicinal products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. All advertising and promotional activities for the product must be consistent with the approved summary of product characteristics, and therefore all off-label promotion is prohibited. Direct-to-consumer advertising of prescription medicines is also prohibited in the EU. Although general requirements for advertising and promotion of medicinal products are established under EU directives, the details are governed by regulations in each member state and can differ from one country to another.

Failure to comply with EU and member state laws that apply to the conduct of clinical trials, manufacturing approval, MA of medicinal products and marketing of such products, both before and after grant of the MA, manufacturing of pharmaceutical products, statutory health insurance, bribery and anti-corruption or with other applicable regulatory requirements may result in administrative, civil or criminal penalties. These penalties could include delays or refusal to authorize the conduct of clinical trials, or to grant an MA, product withdrawals and recalls, product seizures, suspension, withdrawal or variation of the MA, total or partial suspension of production, distribution, manufacturing or clinical trials, operating restrictions, injunctions, suspension of licenses, fines and criminal penalties.

The aforementioned EU rules are generally applicable in the European Economic Area, or EEA, which consists of the 27 EU member states plus Norway, Liechtenstein and Iceland.

UK-specific requirements

Since the end of the Brexit transition period on January 1, 2021, Great Britain (England, Scotland and Wales) has not been directly subject to EU laws, however under the terms of the Ireland/Northern Ireland Protocol, EU laws generally apply to Northern Ireland. The EU laws that have been transposed into United Kingdom law through secondary legislation remain applicable in Great Britain. However, under the Retained EU Law (Revocation and Reform) Bill 2022, which is currently before the UK parliament, any retained EU law not expressly preserved and "assimilated" into domestic law or extended by ministerial regulations (to no later than June 23, 2026) will automatically expire and be revoked by December 31, 2023. Legislation which came into force after the expiry of the Brexit transition period, such as the EU CTR, is not applicable in Great Britain, or GB.

Under the Medicines and Medical Devices Act 2021, the Secretary of State or an 'appropriate authority' has delegated powers to amend or supplement existing regulations in the area of medicinal products and medical devices. This allows new rules to be introduced in the future by way of secondary legislation, which aims to allow flexibility in addressing regulatory gaps and future changes in the fields of human medicines, clinical trials and medical devices.

Since January 1, 2021, the Medicines and Healthcare products Regulatory Agency, or MHRA, has been the UK's standalone medicines and medical devices regulator. As a result of the Northern Ireland Protocol, Northern Ireland will continue to follow the EU regulatory regime, but its national competent authority will remain the MHRA.

The MHRA has introduced changes to national licensing procedures, including procedures to prioritize access to new medicines that will benefit patients, including a 150-day assessment and a rolling review procedure. All existing EU MAs for centrally authorized products were automatically converted or grandfathered into UK MAs, effective in GB (only), free of charge on January 1, 2021, unless the MA holder opted-out. In order to use the centralized procedure to obtain an MA that will be valid throughout the EEA, companies must be established in the EEA. Therefore since Brexit, companies established in the UK can no longer use the EU centralized procedure and instead an EEA entity must hold any centralized MAs. Until January 1, 2024, the MHRA may rely on a decision taken by the EC on the approval of a new MA in the centralized procedure, in order to more quickly grant a new GB MA. A new international recognition framework will be put in place from January 1, 2024, whereby the MHRA will have regard to decisions on the approval of MAs made by the EMA and certain other regulators when determining an application for a new GB MA.

There is now no pre-MA orphan designation in GB. Instead, the MHRA reviews applications for orphan designation in parallel to the corresponding MA application. The criteria are essentially the same, but have been tailored for the market, i.e., the prevalence of the condition in GB, rather than the EU, must not be more than five in 10,000. Should an orphan designation be granted, the period or market exclusivity will be set from the date of first approval of the product in GB.

The UK regulatory framework in relation to clinical trials is derived from the previous EU Clinical Trials Directive (as implemented into UK law, through secondary legislation). On January 17, 2022, the MHRA launched an eight-week consultation on reframing the UK legislation for clinical trials. The consultation closed on March 14, 2022 and aims to streamline clinical trials approvals, enable innovation, enhance clinical trials transparency, enable greater risk proportionality, and promote patient and public involvement in clinical trials. The outcome of the consultation is being closely watched and will determine whether the UK chooses to align with the CTR or diverge from it to maintain regulatory flexibility.

On February 27, 2023, the UK government and the EC announced a political agreement in principle to replace the Northern Ireland Protocol with a new set of arrangements, known as the Windsor Framework. This

new framework fundamentally changes the existing system under the Northern Ireland Protocol, including with respect to the regulation of medicinal products in the UK. In particular, the MHRA will be responsible for approving all medicinal products destined for the UK market (*i.e.*, GB and Northern Ireland), and the EMA will no longer have any role in approving medicinal products destined for Northern Ireland. A single UK-wide MA will be granted by the MHRA for all medicinal products to be sold in the UK, enabling products to be sold in a single pack and under a single authorization throughout the UK. The Windsor Framework was approved by the European Union-United Kingdom Joint Committee on March 24, 2023, so the UK government and the EU will enact legislative measures to bring it into law. On June 9, 2023, the MHRA announced that the medicines aspects of the Windsor Framework will apply from January 1, 2025.

If Homology fails to comply with applicable foreign regulatory requirements, it may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Employees and Human Capital

As December 31, 2023, Homology had 7 full-time employees, including one employee with a M.D. or Ph.D. degree. None of Homology's employees is represented by a labor union or covered by a collective bargaining agreement. Homology considers its relationships with its employees to be good.

Homology's Corporate Information

Homology was incorporated in Delaware in March 2015. Homology's principal executive offices are located at One Patriots Park, Bedford, MA 01730 and its telephone number is (781) 327-2633. Homology's website address is www.homologymedicines.com. Information contained on or accessible through Homology's website is not a part of this proxy statement/prospectus, and the inclusion of Homology's website address in this proxy statement/prospectus is an inactive textual reference only.

Properties

Homology currently occupies approximately 26,850 square feet of office and research and development laboratory space in Bedford, Massachusetts, under a sublease agreement with OXB (US) LLC that is scheduled to expire in 2024. Homology believes that its facilities are sufficient to meet its current needs and that suitable additional space will be available as and when needed.

Legal Proceedings

From time to time, Homology may become involved in litigation relating to claims arising from the ordinary course of business. Homology's management believes that there are currently no claims or actions pending against it, the ultimate disposition of which could have a material adverse effect on Homology's results of operations or financial condition.

On March 25, 2022, a stockholder of Homology, Michael C. Pizzuto, filed a putative class action complaint alleging violations of Sections 10(b) and 20(a) of the Securities and Exchange Act of 1934, as amended, against Homology and certain of its executives. Pizzuto v. Homology Medicines, Inc., No. 2:22– CV – 01968 (C.D. Cal 2022). The complaint alleges that Homology failed to disclose certain information regarding efficacy and safety in connection with a Phase I/II HMI-102 clinical trial, and seeks damages in an unspecified amount. The case is in its early stages. Homology believes the claims alleged lack merit and has filed a motion to transfer venue (filed September 2, 2022) and a motion to dismiss (filed October 17, 2022). On April 18, 2023, the court granted the motion to transfer, finding that venue was not proper in the Central District of California and transferring the case to the District of Massachusetts. Following the transfer, the case number changed to 1:23-cv-10858-AK (D. Mass.). On May 9, 2023, the Massachusetts court issued an order permitting the parties to submit updated briefs in connection with the motion to dismiss, which were submitted on June 8, 2023, July 13, 2023, and August 3, 2023. The motion to dismiss remains pending. As the outcome is not presently determinable, any loss is neither probable nor reasonably estimable.

Q32'S BUSINESS

Overview

Q32 is a clinical stage biotechnology company focused on developing novel biologics to effectively and safely restore healthy immune balance in patients with autoimmune and inflammatory diseases driven by pathological immune dysfunction. To achieve the goal of restoring homeostasis to a dysregulated immune system, Q32 is advancing antibody-based therapeutic candidates designed to target two central pathways of adaptive and innate immunity. The adaptive immune system is largely composed of T- and B-cell mediated cellular and antibody responses, while the innate immune system is the body's first line of defense employing leukocytes that are responsible for clearing pathogens and cellular debris and modulating T- and B-cell function. Q32 believes that targeting these key pathways of immune dysregulation in autoimmune and inflammatory diseases will deliver therapeutics for indications with clear unmet medical need in the near term, while enabling it to build a broad and diverse pipeline in the long term. Q32 has multiple product candidates across a variety of autoimmune and inflammatory diseases with clinical readouts for Q32's two lead programs expected in 2024 and 2025.

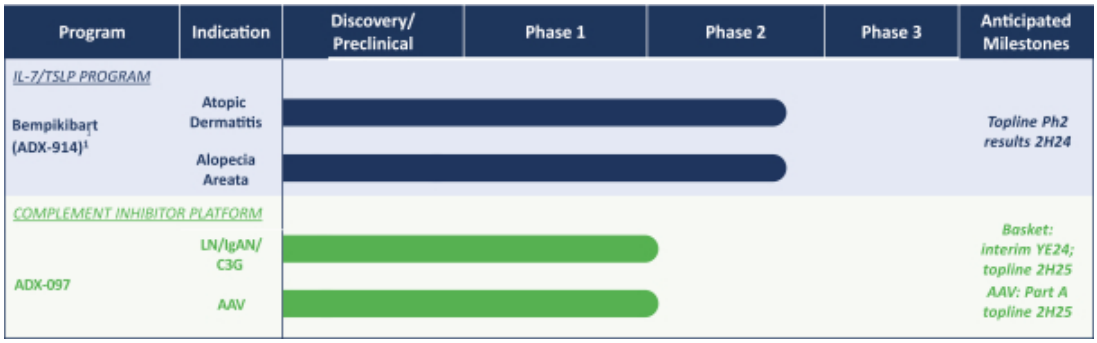
Bempikibart (ADX-914), Q32's most advanced product candidate, is a fully human anti–interleukin-7 receptor alpha, or IL-7Rα, antagonist monoclonal antibody designed to re-regulate adaptive immune function by blocking signaling mediated by interleukin-7, or IL-7, and thymic stromal lymphopoietin, or TSLP. Bempikibart is being studied in two double-blind, placebo-controlled Phase 2 clinical trials designed to establish proof of clinical concept and evaluate Q32's selected Phase 2 dose. One trial is evaluating the use of bempikibart for the treatment of atopic dermatitis, or AD, and one is evaluating bempikibart for the treatment of alopecia areata, or AA. Enrollment in both clinical trials remains ongoing and Q32 expects to report topline data from both Phase 2 clinical trials in the second half of 2024.

ADX-097, the lead product candidate from Q32's complement inhibitor platform, is a humanized anti-C3d monoclonal antibody, or mAb, fusion protein. ADX-097 is designed to restore complement regulation—an integral part of the innate immune system—through a tissue-targeted mechanism. ADX-097 is designed to inhibit alternative pathway complement activation locally in diseased tissues where complement-mediated pathology is actively manifest. Q32 believes ADX-097 has the potential to drive improved clinical activity and address the limitations of the currently available systemic approaches to complement inhibition, including infection risk and the need for high drug doses and frequent administration, to achieve therapeutic levels of inhibition. Q32 is developing ADX-097 for the treatment of renal and other complement-mediated diseases of high unmet need, including lupus nephritis, or LN, immunoglobulin A, or IgA, nephropathy, or IgAN, complement component 3 glomerulopathy, or C3G, and anti-neutrophil cytoplasmic antibody, or ANCA, associated vasculitis, or AAV. Q32 has completed a Phase 1 clinical trial of ADX-097 in healthy volunteers. Q32 expects to initiate an open-label Phase 2 renal basket program in the first half of 2024, with initial data expected by year-end 2024, and initiate a Phase 2 clinical trial in AAV, with topline data from both the renal basket and AAV trials anticipated in the second half of 2025.

In addition to ADX-097, Q32 is also engaged in additional pipeline efforts to expand therapeutic opportunities within complement-mediated diseases.

Q32's development pipeline is shown in the figure below.

Figure 16: Q32's Development Pipeline



Note: AAV = Anti-Neutrophil Cytoplasmic Autoantibody (ANCA)-Associated Vasculitis; IgAN = IgA Nephropathy; LN = Lupus Nephritis; C3G = C3 Glomerulopathy. (1) Regained full development and commercial rights in November 2023.

Bempikibart (ADX-914)

Q32's most advanced product candidate, bempikibart, is a fully human antibody anticipated to block IL-7- and TSLP-mediated signaling via their cognate receptors. Increased levels of IL-7 and TSLP are associated with inflammatory and autoimmune diseases.

In October 2023, Amgen, Inc., or Amgen, completed the acquisition of Horizon Therapeutics public limited company, or Horizon plc. Following its acquisition of Horizon plc, Q32 agreed with Amgen to mutually terminate the Collaboration and Option Agreement, or the Horizon Collaboration Agreement, and the Asset Purchase Agreement, or the Purchase Agreement, and together with the Horizon Collaboration Agreement, the Horizon Agreements, each between Q32 and Horizon Therapeutics Ireland DAC, or Horizon. In November 2023, Q32 and Horizon entered into a termination agreement, or the Horizon Termination Agreement, pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, Q32 retained the initial consideration and development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to bempikibart. In consideration for the Horizon Termination Agreement, Q32 agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart. For more information see the section titled "*Q32's Business—Collaboration and License Agreements.*"

Q32 has completed a Phase 1 study that showed bempikibart was well tolerated and exhibited a pharmacokinetics, or PK, / pharmacodynamic, or PD, profile supporting dosing of no more frequently than once every two weeks. There were no severe or serious adverse events, or AEs, reported and there was no impact of any observed anti-drug antibodies, or ADAs, on pharmacology or safety. Q32 is currently conducting two Phase 2 clinical trials, one in each of AA and AD, with topline data for both clinical trials expected in the second half of 2024.

T cell pathology has been strongly implicated in AD and AA. Accumulating evidence suggests that multiple pathways are important in the pathogenesis of AD. This emerging view supports the belief that novel therapeutics, such as bempikibart, that more specifically address the underlying immune-phenotypic progression of the disease are needed. TH1 has long been implicated in the pathogenesis of AA supporting the potential for bempikibart to directly address the underlying driver of follicle damage and hair loss. In addition, given that AA is a disease often diagnosed in young adults, there is a critical need for effective novel treatments with a safety profile suitable for long-term, chronic treatment.

Q32 owns and has in-licensed various patents, patent applications, know-how and trade secrets relating to the development and commercialization of Q32's IL-7Rα -targeted antagonistic antibody therapy candidates and platform technologies. Patents that have issued or may issue in the future protect composition of the bempikibart product candidate to the beginning of 2040, and protect methods of use to 2044, excluding any patent term adjustments and/or any patent term extensions.

ADX-097

ADX-097 is an anti-C3d antibody linked to two moieties of a fragment of human factor H, or fH. C3d is a ubiquitous marker of complement activation, located adjacent to C3 convertase complexes. Factor H is an important negative regulator of the complement alternative pathway, or AP. While complement can be activated through three pathways, the AP is central to all because it amplifies signaling. This aspect of AP activation is commonly known as the "amplification loop" and is responsible for much of the damage observed in complement-mediated diseases.

Q32 has evaluated ADX-097 in a Phase 1 clinical trial in healthy volunteers where Q32 observed circulating PK/PD consistent with preclinical studies, which established *in vivo* ADX-097 integrity and informed Q32's dosing strategy for next stage clinical testing. In addition, no severe or serious AEs were reported and minimal ADAs were observed in this Phase 1 clinical trial.

These Phase 1 data and Q32's preclinical studies have enabled targeted indication selection for Q32's Phase 2 program as well as informed Q32's key Phase 2 dose. Q32 expects to initiate an open-label Phase 2 renal basket program in the first half of 2024 and a Phase 2 clinical trial in AAV in the first half of 2025.

In complement mediated proteinuric renal diseases (e.g., LN, IgAN and C3G), there remains substantial unmet need for therapeutics that can more effectively mitigate proteinuria and improve long-term kidney outcomes. Additionally, in AAV, even with optimal treatment, successful attainment and long-term maintenance of remission remains challenging and the therapeutics used as part of standard of care, or SOC, treatment are themselves associated with significant infection related morbidity. Q32 believes that the tissue-directed approach to addressing complement dysregulation has the potential to drive improved efficacy and better safety across these indications. This tissue directed AP approach also has the potential to avoid the additive infection risk associated with systemic complement treatments, which is of significant importance to patients where the underlying condition is marked by high mortality due to infection (e.g., LN and AAV).

Complement activation is an essential part of innate and humoral immunity, and uncontrolled and sustained tissue complement activity plays a significant role in the pathogenesis of multiple human inflammatory and autoimmune diseases. The first approved complement inhibitor, eculizumab, targets C5 systemically, one of the effector arms of the complement pathway. The next generation of marketed and development stage complement therapeutics continue to rely on systemic complement blockade. To date, eight complement inhibitors have been approved for various indications with cumulative sales of nearly $6 billion in 2022. While commercial and clinical success provide validation of complement as a therapeutic target, clinical experience reveals the inherent drawbacks of systemic inhibition as a therapeutic approach, including:

- **limited activity** due to reliance on systemic blockade for control of complement dysregulation at the tissue level;
- **high treatment burden**, including high doses and/or frequent administration due to high abundance and rapid turnover of most target complement proteins; and
- **infection risk** due to systemic blockade.

Q32's aim is to solve for these inherent drawbacks with Q32's proprietary approach designed to generate tissue targeted inhibitors of complement activation, which have the following advantages:

- **enhanced activity** through tissue targeted inactivation of convertases directly at the site of destruction;

- **convenient dosing** with a subcutaneous route and weekly dosing, with potential for every 2 week dosing; and
- **improved risk/benefit profile** by maximizing therapeutic index while maintaining intact systemic immune surveillance.

Q32 owns various patents, patent applications, know-how and trade secrets relating to the development and commercialization of Q32's targeted complement inhibitor candidates and platform technologies. Patents that have issued or may issue in the future protect composition of the ADX-097 complement product candidate to the end of 2039, and protect methods of use to the end of 2044, excluding any patent term adjustments and/or any patent term extensions.

Q32's Team

Q32 has assembled a team of industry-leading research, drug development, and operational experts, who have deep experience in advancing drug candidates in autoimmune and inflammatory diseases. The team is led by Jodie Morrison, Q32's Chief Executive Officer, who brings extensive biopharma leadership experience from early stage through mid-size public biotech and pharmaceutical companies; Shelia Violette, Ph.D., Founder, Chief Scientific Officer and President of Research, has more than 30 years of biotech experience in inflammatory and autoimmune diseases and served as an Entrepreneur in Residence at Atlas Venture; Jason Campagna, M.D., Ph.D., Chief Medical Officer, has more than 15 years of experience advancing all stages of clinical development pipelines; Lee Kalowski, interim Chief Financial Officer, has 20 years of life science industry experience and has previously served as CFO at multiple biotech companies and in equity research; and Saul Fink, Ph.D., Chief Technical Officer, has extensive experience in leading manufacturing and nonclinical development of small molecules and biologics.

Q32 was built upon the discoveries and findings from renowned researchers in immunology: Michael Holers, M.D. and Joshua Thurman, M.D., from the University of Colorado and Stephen Tomlinson, Ph.D. from the Medical University of South Carolina. They are pioneers in the field of tissue targeted regulation of complement system.

Q32 is supported by leading biotechnology investors and pharmaceutical companies including OrbiMed, Atlas Venture, Abingworth, BMS, Acorn Bioventures, Osage University Partners, CU Healthcare Innovation Fund and Sanofi Ventures.

Q32's Strategy

Q32's mission is to develop therapeutics that restore healthy immune regulation for patients with severe autoimmune and inflammatory diseases. Q32's strategic initiatives are to:

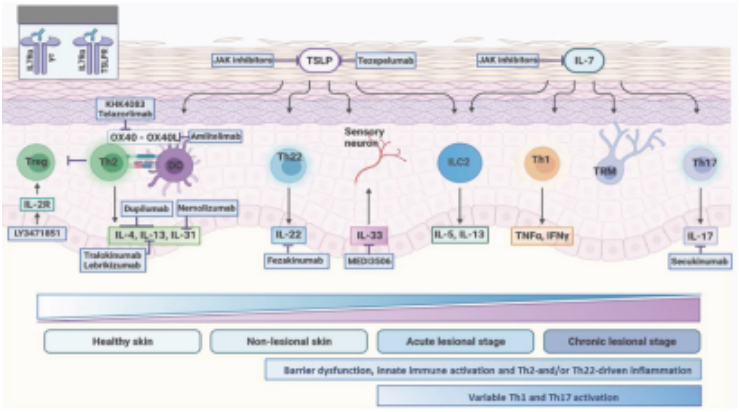
- ***Complete Q32's Phase 2 AD trial with bempikibart.*** Q32 plans to complete the ongoing Phase 2 clinical trial for bempikibart in AD with topline results expected in the second half of 2024.
- ***Complete Q32's Phase 2 AA trial with bempikibart.*** Q32 plans to complete the ongoing Phase 2 clinical trial for bempikibart in AA with topline results expected in the second half of 2024.
- ***Complete a renal basket program with ADX-097.*** Q32 plans to initiate a renal basket program in the first half of 2024 with initial data expected by year-end 2024.
- ***Complete Part A of Q32's Phase 2 AAV trial with ADX-097.*** Q32 plans to initiate Part A of Q32's Phase 2 AAV trial in the first half of 2025 with topline results expected in the second half of 2025.
- ***Leverage Q32's deep expertise in tissue targeted complement therapeutic development to build a broad portfolio.*** Q32 is engaged in research activities to advance Q32's pipeline of additional candidates targeting complement inhibition.

Q32's Programs

Bempikibart in AD and AA

Bempikibart blocks both IL-7 and TSLP cytokine signaling pathways. IL-7 lowers the threshold needed for T cells to respond in low antigen microenvironments promoting pathogenic T-effector cell function, induces TH2 cell-mediated antibody production, and inhibits the immunosuppressive properties of T regulatory cells. When uncontrolled, IL-7 can promote inflammation and autoimmune disease. By blocking IL-7 signaling, Q32 believes bempikibart has the potential to re-regulate immunity by rebalancing the T-effector / T-regulatory ratio to inhibit inflammation and invoke tolerance, and mitigating T-cell dependent autoantibody responses. TSLP is a cytokine that promotes TH2 cell differentiation and production of TH2 cytokines, such as IL-4, IL-5, and IL-13, and promotes inflammation, particularly at the epidermis, in response to environmental stimuli. IL-7 and TSLP signaling have been biologically linked to numerous inflammatory and autoimmune diseases including Q32's initial target diseases of AD and AA. The figures below illustrate the mechanistic rationale for bempikibart in AD and AA.

Figure 17: Bempikibart Has the Potential to Modulate Immune Cells Important in Both Acute and Chronic AD Pathogenesis



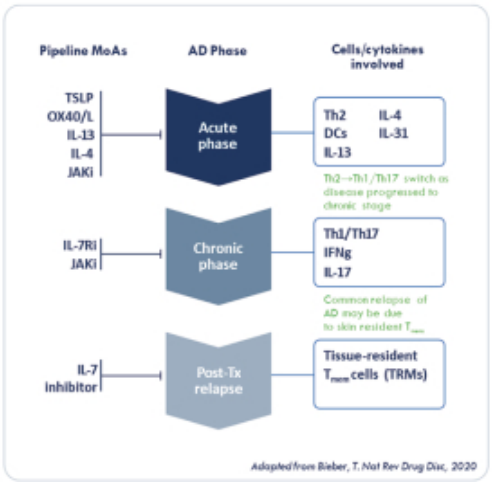
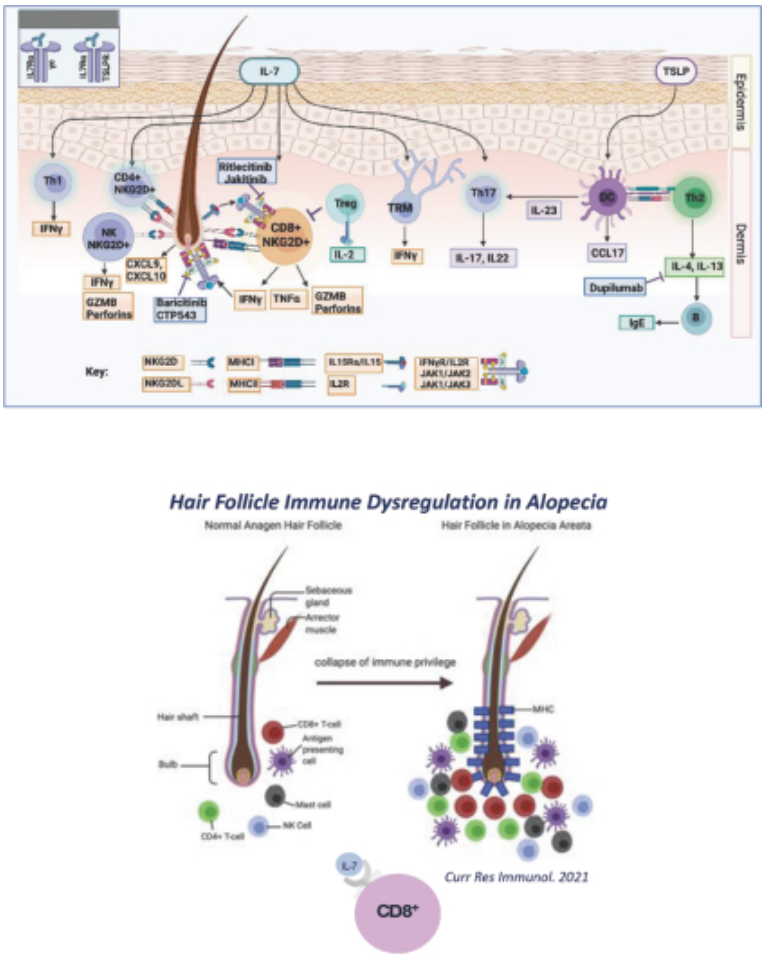


Figure 18: Bempikibart Has the Potential to Block TH1-and TH2-Driven Disease Pathology in AA



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Bempikibart Preclinical and Clinical Data

Bempikibart was evaluated in a series of *in vitro* assays and demonstrated potent inhibition of IL-7-and TSLP-mediated intracellular signaling.

Bempikibart, or a mouse surrogate, SB14, was evaluated *in vivo* in animal models of inflammation and autoimmunity. Activity was observed as determined by various endpoints, including disease activity measures, body weight, inflammatory cytokine production and tissue damage.

Preclinical studies evaluating bempikibart PK, PD and toxicology were carried out in non-Good Laboratory Practice, or GLP, single dose and GLP repeat dose studies of 6 weeks, 3-months, and 6-months duration in cynomolgus monkeys. Bempikibart exposure was maintained above the desired PK threshold throughout the dosing phase in most animals despite detectable ADAs. PD evaluations included T cell receptor occupancy, or RO, inhibition of IL-7–induced phosphorylation of STAT5, or pSTAT5, an immediate proximal marker of IL-7R intracellular signaling, and keyhole limpet hemocyanin, or KLH-induced T cell dependent antibody response. There was a favorable PK/PD relationship, with bempikibart demonstrating >95% RO, ≥90% inhibition of pSTAT5 and up to 80% suppression of a KLH-induced IgG response.

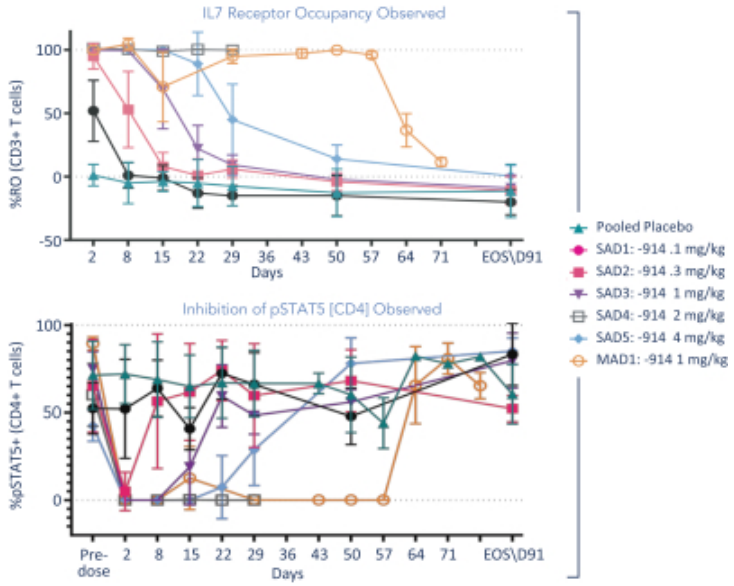
Bempikibart was generally well tolerated in all preclinical studies described above. The no-observed-adverse-effect level, or NOAEL, in the 6-month GLP study was 150 mg/kg, the highest dose tested, with exposure >50x the anticipated area under the curve at the dose presently being utilized for the ongoing Phase 2 studies.

Phase 1 Clinical Trial Results

Q32 has completed a Phase 1 study, ADX-914-001, to assess the safety, PK, and PD of bempikibart after subcutaneous, or SC, administration in healthy volunteers. As seen in Figure 19 below, pharmacodynamic analyses showed bempikibart treatment at SC doses achieving ≥95% RO demonstrated >90% inhibition of IL-7 mediated intracellular signaling, as demonstrated by phosphorylation of STAT5, or pSTAT5, in T-cells. Figure 19 also shows doses of bempikibart as low as 0.3mg/kg achieved full RO and pSTAT5 inhibition over a period of up to 48 hours; doses greater than 1 mg/kg demonstrated sustained full RO for at least 2 weeks. In addition, a separate analysis of overall numbers of lymphocytes and lymphocyte subsets demonstrated modest, dose-dependent effects consistent with the expected and desired bempikibart pharmacology.

Safety data showed that bempikibart demonstrated a favorable safety profile at single doses up to 4 mg/kg and repeat doses of 1 mg/kg every 2 weeks in healthy subjects. There were no safety-related treatment discontinuations, no serious or severe AEs reported, and no deaths.

Figure 19: Bempikibart Phase 1 Clinical Data Support Clinical Development

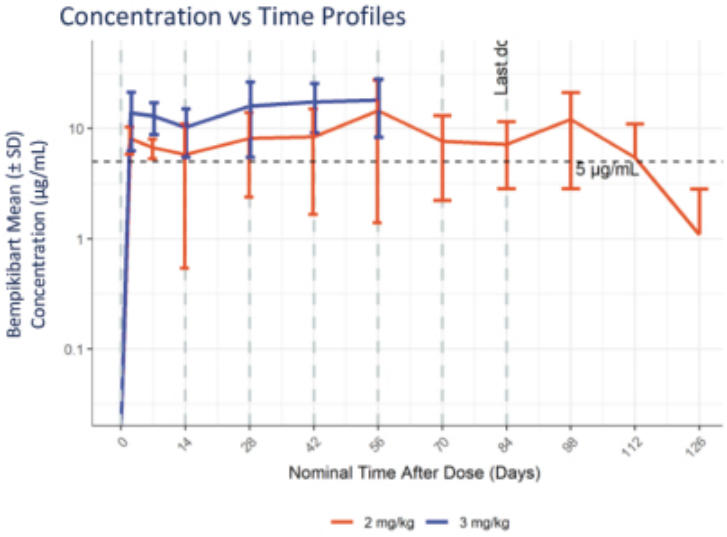


RO: Receptor occupancy; pSTAT5: phosphorylated STAT5; MAD: multiple ascending dose (note: MAD1 cohort dosed once every 2 weeks); SAD: single ascending dose; EOS: end of study

Pharmacology Sub-study in Patients with AD

Study ADX-914-202 is an ongoing, two-part, Phase 2, randomized, double-blind, placebo-controlled, proof-of-concept study in adult subjects with persistent moderate to severe AD, consisting of Part A and Part B. Part A evaluated PK/PD, as well as preliminary efficacy and tolerability, to support dose selection for Part B, which is evaluating the efficacy of bempikibart in AD, as well as for ADX-914-203, a trial evaluating the safety, efficacy, and dose selection of bempikibart in AA. To date, bempikibart has been generally well tolerated, with no notable safety findings (see figure below for a summary of this interim blinded data from Part A). Based on data from both ADX-914-001 and Part A of ADX-914-202, a dose of 200 mg administered subcutaneously every two weeks has been selected as the Phase 2 dose for both Part B of ADX-914-202 and for ADX-914-203 and enrollment in both trials is ongoing. Figure 20 shows PK data from Part A of ADX-914-202, which supports the ongoing development program.

Figure 20: Bempikibart Phase 2 AD Part A PK Data



The Role of IL-7 and TSLP in AD and AA

AD

There is evidence for the involvement of IL-7 and its actions on T cells in the pathobiology underlying AD. IL-7–overexpressing mice spontaneously develop chronic dermatitis and show an increased number of lymphocytes in skin. There is a growing body of evidence from mouse, non-human primates, or NHPs, and man on the importance of tissue-resident memory cells, or TRMs, in skin inflammatory disorders, including AD.

TSLP is also strongly implicated in the pathogenesis of AD and this cytokine is highly expressed in AD skin lesions. TSLP plays a role in activating group 2 innate lymphoid cells, which are enriched in the skin of patients with AD. In rodent models of disease, attenuation of TSLP signaling leads to improvement in keratosis, acanthosis, and dermal mononuclear cell infiltration.

Rationale for Dual IL7-R/TSLP-R Inhibition in AD

Early AD is characterized by activation of the skin innate immune response alongside a core Th2-T helper cell adaptive response. Later in the disease, a widening of the adaptive immunity is evident with Th1, Th17, and Th22 responses becoming more relevant. Within this framework, TSLP and IL-7 may act as sequential mediators of AD initiation (via Th2 pathways) and progression (via Th1 and/or Th17), respectively (see figure 17 above).

Dual IL-7/TSLP blockade with bempikibart could represent an important therapeutic modality considering the evolving understanding of the immunopathology underlying AD in humans.

AA

AA is an immune-mediated disorder that results in hair loss and shares some similarity in pathophysiology with AD. Studies have indicated that multiple immunomodulators are involved in the development of AA, with hair follicle immune privilege collapse being a key marker in the course of the disease. Immune system activation in lesional skin contributes to the progression of disease.

IL-7 has been shown to be involved in the pathogenesis of AA. IL-7 expression is upregulated at the site of AA lesions and animal studies demonstrated IL-7–dependent acceleration of disease progression and beneficial effects with IL-7Rα inhibition. Cumulatively, substantial evidence suggests that inhibition of IL-7Rα may be an effective modulator of the T-cell response that could act to reverse alopecia.

Current Treatment Landscape and Unmet Need in AD and AA

AD is the most common chronic inflammatory skin disease. The majority of AD starts in infancy or childhood, with the remaining disease burden developing during adulthood. The prevalence in children varies from 2.7% to 20.1% by geography and ranges from 2.1% to 4.9% in adults. The disease is heterogeneous in its natural history, and individual trajectories are variable.

Historically, the main therapeutic approaches have included avoidance of triggers, paired with the use of topical agents that are intended to exert local control of skin lesions and/or itch, and broad-spectrum immunosuppressive agents for more severe or high surface area disease. Many of these commonly used treatments have provided limited improvements in affected total body surface, severity of disease for any given body area involvement and/or resolution in itch varying among treated populations, and potentially not all have been achieved in the same patient. Approved topical therapeutics have also been associated with substantial safety concerns. For example, topical calcineurin inhibitors including tacrolimus and pimecrolimus, both of which carry boxed warnings for potential safety risks, including skin cancers and lymphomas.

More recently, systemic, targeted, immunomodulating biologics have been approved for use in AD. The anti–IL-4Rα antibody dupilumab, which inhibits IL-4 and IL-13 signaling (and obtained U.S. approval in 2016 and European Union, or EU, approval in 2017), was the first systemic biologic to become available for the treatment of patients with AD. The small-molecule Janus kinase, or JAK, inhibitors baricitinib (EU 2020 approval date), upadacitinib and abrocitinib (US 2021 approval dates) and the anti–IL-13 antibody tralokinumab (US 2021 approval date) have also been approved for use in AD. Despite these recent approvals, these therapeutics either narrowly address only partial elements of the disease biology or are associated with potential serious, long-term safety concerns, thus there remains a continued unmet medical need. Ideally, disease management evolves to account for the clinical, and likely biologic, heterogeneity characteristic of the disease.

AA is an autoimmune condition that affects hair follicles and leads to hair loss. This condition may develop at any age and in both sexes, and the incidence of this disease has been estimated to be 2% of the population worldwide. The disease most commonly affects scalp and facial hair and although some patients recover spontaneously, many patients progress to alopecia totalis (total scalp hair loss) or alopecia universalis (total body hair loss). The disease is associated with significant quality of life impairment and is associated with a high burden of psychosocial comorbidities, such as depression. Although pathophysiology has not been fully delineated, development of the condition is mediated by inflammatory mechanisms, and it is thought to have genetic and environmental components. IL-7 upregulation has been shown to be involved in the pathogenesis of AA, and evidence suggests that inhibition of IL-7Rα may be an effective modulator of the T-cell response driving injury in the disease.

Baricitinib and ritlecitinib, both JAK inhibitors, are the only current FDA-approved treatments for AA. Although JAK inhibitors have demonstrated hair regrowth in patients with severe disease (≥50% hair loss),

increased risk of serious side effects may preclude this option for some patient populations. Other standard-of-care approaches for alopecia include topical corticosteroids, immunotherapy, and light therapy. Because hair loss can affect such disparate body locations, these treatments often have limited usefulness across the patient population.

Further Clinical Development of Bempikibart: Clinical Trial Plan

For patients with a wide range of autoimmune diseases, including AD and AA, Q32 believes the blockade of IL-7 and/or TSLP signaling may offer a new therapeutic approach to modulate the autoimmune response. A high unmet medical need exists for more broadly effective therapies in these conditions, and Q32 is developing bempikibart with the goal of addressing this need. Based on the totality of data to date, bempikibart has shown a favorable safety profile and has not been associated with clinically meaningful ADA. At exposures that can be achieved via SC administration, bempikibart has shown full receptor occupancy and signaling inhibition.

Overall, the available clinical and nonclinical data for bempikibart support the continued clinical development of bempikibart. To this end, Q32 has advanced bempikibart into two ongoing Phase 2 studies, ADX-914-202 (AD) and ADX-914-203 (AA).

Study ADX-914-202

This is an ongoing, two-part, Phase 2, proof-of-concept study in adults with persistent moderate to severe disease as defined by the EASI score. Part A is the PK/PD run-in portion of the study and was conducted to inform dose selection for the subsequent Part B portion and for the Phase 2 study in AA. Bempikibart or placebo will be dosed SC every two weeks for 12 weeks, with a follow-up period of 12 weeks.

- The study will recruit adults with chronic AD who have moderate to severe disease activity at the time of consent and who, in the opinion of the Investigator, have a history of inadequate response to previous therapy. In total, approximately 110 subjects will be enrolled.
- The primary objective of Part A is to identify the recommended bempikibart dose for Part B. Q32 conducted an interim analysis to review the preliminary PK and safety data from Part A, and 200 mg was selected as the recommended Phase 2 dose for Part B.
- The primary objective of Part B is to evaluate the efficacy of bempikibart vs placebo. The primary endpoint of Part B is the mean percentage change from Baseline in EASI score at Week 14 for bempikibart (200 mg) vs placebo.

Study ADX-914-203

Study ADX-914-203 is an ongoing Phase 2 proof-of-concept trial to assess the efficacy, safety, and tolerability of bempikibart in participants with severe AA, as defined by the SALT score. In the study, bempikibart or placebo will be dosed SC for 24 weeks, with a follow-up period of 12 weeks.

- The study will recruit adults with a current episode of severe hair loss with no spontaneous improvement over the past 6 months, along with the Investigator’s assessment that hair loss has been stable for at least 3 months and regrowth is possible.
- Approximately 40 participants will be enrolled and randomly assigned (3:1) to receive 200 mg bempikibart or matching placebo administered SC every two weeks for 24 weeks. The primary efficacy endpoint is the mean relative percent change in SALT score at 24 weeks compared with baseline.

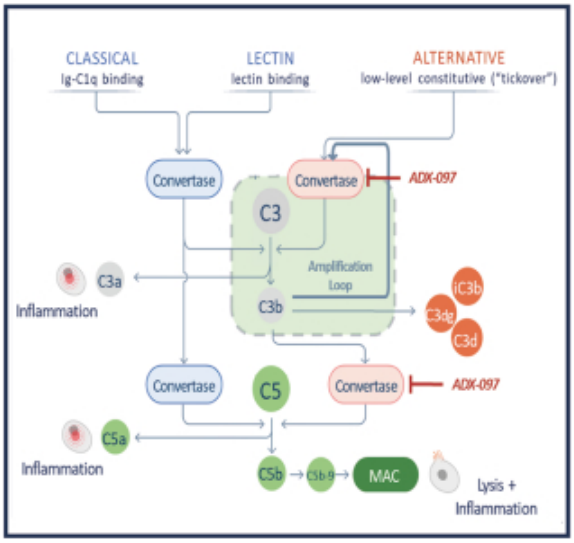
ADX-097 in LN, IgAN, C3G and AAV

Complement is an integral part of the innate immune system used as a first line of defense for removing bacteria and other pathogens, as well as damaged cells, and for modulating an adaptive immune response. In spite of these beneficial functions, when the complement system becomes dysregulated it can be a critical driver of chronic inflammatory and autoimmune diseases.

There are three main branches of the complement system: the classical, or CP, the lectin, or LP, and the AP. These pathways can lead to the generation of cellular/tissue bound protein complexes, called convertases, the gatekeepers that catalyze the cleavage of the complement component 3 and 5 proteins, or C3 and C5, respectively. This cleavage, predominantly happening on the cellular/tissue surface, ultimately leads to the formation of C3a and C5a, chemotactic factors that recruit inflammatory immune cells, and the assembly of C5b-9 forming the membrane attack complex, or MAC, on cell membranes. Uncontrolled and persistent production of these complement activation products ultimately leads to pathological tissue inflammation and cellular damage.

The AP is central to the complement system. It provides for amplification of complement signaling downstream of all 3 complement pathways, commonly referred to as the "amplification loop" (see figure below). Consequently, sustained overactivation of the complement system in many diseases is driven by AP activation.

Figure 21: Schematic of the Complement System Showing Critical Elements of the Three Pathways.



MAC: Membrane attack complex.

Under normal conditions, inactivation of convertases, to maintain proper balance of the complement system, is endogenously controlled by several complement negative regulatory proteins. Among these is fH, a protein that binds and inactivates AP convertases. Factor H both catalyzes dissociation of AP C3 and C5 convertases and, in combination with Factor I, leads to irreversible catalytic degradation.

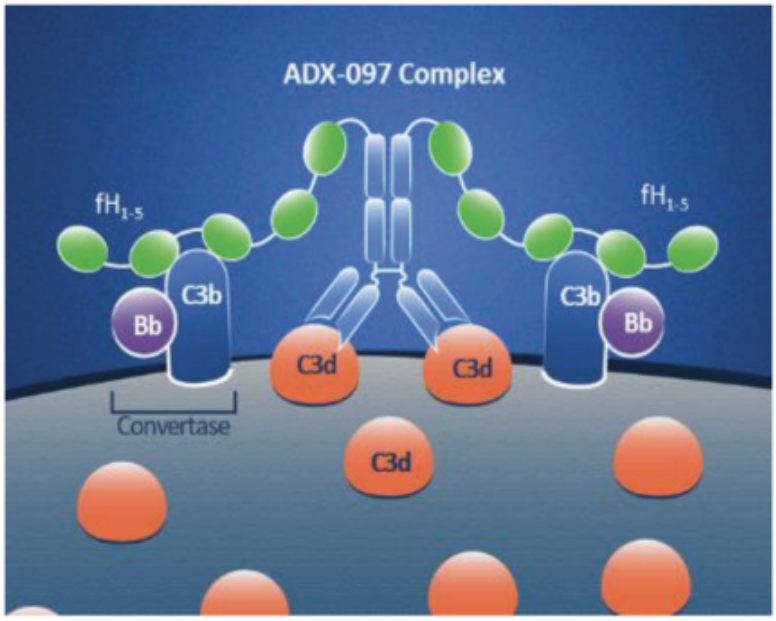
Given the central role of the AP in driving complement activity, gaining control of this pathway provides a mechanism to restore proper regulation of the complement system when it becomes dysregulated in disease.

ADX-097

ADX-097 is a C3d mAb recombinantly linked to 2 moieties of human fH_{1-5}. ADX-097 was designed to provide a unique tissue targeted therapeutic approach to restore proper complement regulation on the surfaces of cells in diseased tissue where AP convertase assembly occurs and the amplification loop magnifies complement activation. The fH_{1-5} component of ADX-097 consists of the first five N-terminal domains of fH, which catalyzes the dissociation and irreversible proteolytic degradation of the AP C3/C5 convertases. When C3 is cleaved as a

consequence of complement activation it leads to the generation of high-density surface bound C3d deposits positioned adjacent to the AP C3/C5 convertases. Q32's preclinical studies demonstrate that the binding of the antibody portion of ADX-097 to C3d brings the human fH1-5 protein into proximity with surface-bound C3/C5 AP convertases, allowing fH1-5 to interrupt complement activation. Thus, Q32 believes, based on preclinical studies, that ADX-097 has the potential to durably restore control of the complement system at specific sites of ongoing injury and at doses where complement surveillance is maintained in circulation. See Figure 22 for a depiction of ADX-097's targeted mechanism of action.

Figure 22: Schematic of ADX-097 Targeted Mechanism of Action



fH1-5: first 5 N-terminal short consensus repeats of human factor H; mAb: monoclonal antibody

Given the ubiquitous nature of C3d deposition in tissue where complement is activated, and the importance of the AP in maintaining complement activation, Q32 believes ADX-097 has therapeutic potential for multiple diseases. Q32 also believes that by inhibiting complement in a tissue-directed manner, a greater potential for clinical activity is possible, particularly in Q32's renal basket program and AAV Phase 2 clinical trial.

Q32 has completed a robust preclinical and translational package and has also completed a Phase 1 clinical trial in healthy volunteers. Q32 plans to initiate Q32's clinical program in patients with ADX-097 in the first half of 2024.

Q32 intends to further evaluate ADX-097's efficacy and safety profile using biomarkers and functional endpoints in Q32's planned clinical studies. AAV and other renal diseases have established biomarkers and defined clinical trial endpoints. Current standard of care allows for the possibility of attaining biopsies and, therefore, detailed examination of ADX-097 binding to its target and impact on the relevant complement fragments. Together with urinary markers of complement activation, this data set is expected to provide supportive proof of mechanism and demonstration of target engagement in the diseased tissue.

ADX-097 Preclinical and Clinical Data

Preclinical pharmacology, PD, PK, and toxicology of ADX-097 were assessed in a wide range of *in vitro* experiments and *in vivo* nonclinical studies in mice, rats and NHPs. Three non-GLP and two GLP PK, PD and toxicology studies were completed to support clinical development of ADX-097.

These studies have provided compelling evidence for the therapeutic potential of ADX-097. These studies have demonstrated that ADX-097 or a pharmacologically equivalent mouse homolog, ADX-118, which contains the parent mouse anti-C3d antibody used in ADX-097 recombinantly linked to mouse fH_{1-5}, were able to:

- Bind C3d and inhibit complement in *in vitro* assays
- Distribute and bind C3d present in rodent kidney, liver, and skin and to NHP skin.
- Provide durable anti-complement activity in rodent and NHP tissue, with limited and transient systemic inhibition: durable (>7 days) tissue PD after 1-3 mg/kg SC dosing.
- Reduce glomerular C3 fragment deposition, proteinuria/albuminuria, and additional biomarkers of renal injury in rodent models of kidney disease.
- Demonstrate increased functional potency compared to similar non-targeted fH_{1-5} in a passive Heymann nephritis, or PHN, model of kidney disease.

The ADX-097 preclinical toxicology studies were conducted in pharmacologically relevant species, mice and cynomolgus monkeys. It included a cross-reactivity study using human tissues to identify any potential off-target tissue binding, repeat-dose non-GLP studies of 28-day duration in mice and cynomolgus monkeys by SC or intravenous, or IV, administration, and a 29-day GLP repeat-dose toxicology study in cynomolgus monkeys by SC or IV administration. It also included a non-GLP 28-day study and a GLP 3-month study with ADX-118, a mouse homolog protein of ADX-097 with equivalent pharmacological activity, to minimize immunogenicity with long-term dosing. No ADX-097-mediated pharmacological adverse effects were observed in up to 29-day repeat-dose studies in either mice or monkeys. All adverse effects were attributable to an immune-mediated response to a humanized/human fusion protein in NHPs and mice. Consistent with all ADX-097 adverse events being mediated by an immune response to the humanize/human protein, no ADX-118-mediated adverse effects were observed in the 3-month repeat dose studies in mice. The NOAEL was determined at 250 mg/kg by IV weekly dosing (QW), the highest dose tested in the 3-month mouse study, providing support for chronic administration of ADX-097. Overall, the ADX-097 preclinical toxicology analysis provided a > 40x safety margin that Q32 believes supports Q32's planned dosing for Q32's Phase 2 renal basket program and AAV clinical trial.

Preliminary Phase 1 Clinical Trial Data

ADX-097 has been evaluated in a completed Phase 1 study conducted in healthy volunteers, study ADX-097-101.

This was a randomized, double-blind, placebo-controlled, single ascending dose, or SAD, and multiple dose study to assess the safety, tolerability, PK, and PD of ADX-097. Data from this study provided initial characterization of the safety, PK, PD, and immunogenicity profile of ADX-097 across a wide range of dose levels, using both IV and SC routes of administration.

In total, 56 healthy volunteers were dosed (randomized 2:1; n=4 ADX-097 and n=2 placebo per cohort): 49 volunteers in the SAD portion of the study and 7 participants in the multiple dose portion. The SAD portion of the study included Cohort 1 (0.1 mg/kg IV), Cohort 2 (0.3 mg/kg IV), Cohort 3 (1 mg/kg IV), Cohort 4a (3 mg/kg IV), Cohort 4b (3 m/kg [actual: 3.75 mg/kg] SC), Cohort 6a (10 mg/kg IV), Cohort 6b (10 mg/kg SC), and Cohort 8 (30 mg/kg IV). The multiple dose portion of the study included multiple ascending dose, or MAD, Cohort 1 (450 mg SC fixed weekly dose).

Blinded safety data indicated that ADX-097 was generally well tolerated across all dose levels with single or repeat dosing with no observed clinically significant drug-related safety findings or trends. All observed treatment-emergent adverse events, or TEAEs, were mild or moderate in severity. There were no observed serious adverse events, no severe TEAEs, no discontinuations due to study drug, and no dose-related trends in TEAEs. Except for one observed TEAE of blood creatine phosphokinase increase in SAD Cohort 1 that was deemed mild by the investigator, there were no observed clinically significant drug-related laboratory findings or trends. In addition, there were no observed clinically significant findings related to vital signs or electrocardiograms, no TEAEs related to immunogenicity, and SC administration was generally well tolerated with only mild injection site reactions observed.

In the PK analysis, ADX-097 demonstrated dose-dependent PK and the minimum drug concentration at a dose of 450 mg SC weekly dosing is estimated to achieve a target threshold associated with tissue pharmacological activity in over 90% of patients. The PD analysis demonstrated increasing inhibition of circulating AP activity and more sustained inhibition with increasing doses. No apparent change in circulating AP activity was observed following 450mg SC weekly dosing. No clinically significant ADA was identified in the ADX-097-101 study, consistent with low immunogenicity potential of ADX-097 in humans. See Figure 23 and Figure 24 for a summary of ADX-0972-101 PK and PD data.

Figure 23: ADX-097-101: Plasma ADX-097 Concentrations and % of Baseline Wieslab AP Activity After Single Dose IV of ADX-097

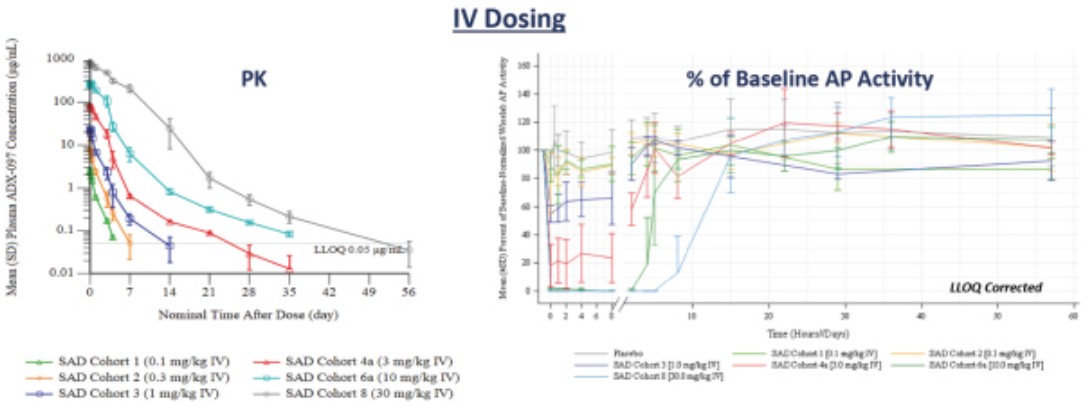
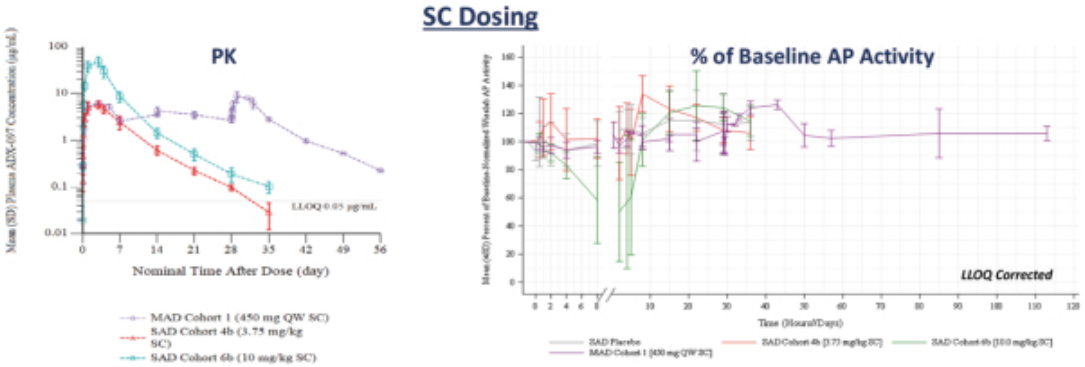


Figure 24: ADX-097-101: Plasma ADX-097 Concentrations and % of Baseline Wieslab AP Activity After Single/Multiple Dose SC of ADX-097



The Role of Complement in LN, IgAN and C3G

LN is an autoimmune disease that occurs in approximately 50% of patients with systemic lupus erythematosus. It is associated with glomerular immune complex, or IC, deposition, derived either from the circulation or formed in situ from autoantibodies directed against nuclear and cellular antigens, that activates complement resulting in intrarenal inflammation. AP activation has been shown to contribute to complement-mediated tissue injury in LN. LN is divided into 6 histopathological classes according to the International Society of Nephrology/Renal Pathology Society system, based on glomerular IC deposit location, the extent of glomerular involvement, and whether the injury pattern reflects active or chronic disease. The use of immunosuppressive medications is common in the treatment of lupus nephritis. While these drugs can help control the autoimmune response that leads to kidney inflammation, they also increase the risk of infectious complications. Treating physicians are seeking to reduce immunosuppressive medications and enhance safety.

IgAN is an IC-mediated glomerulonephritis characterized by mesangial IgA deposition, activation of complement and glomerular inflammation. The role of complement in mediating local tissue injury in IgAN is widely recognized. Kidney biopsies reveal deposition of complement proteins such as fH, properdin, C4d, mannose-binding lectin, active C3 fragments, and C5b-9, supporting involvement of both the AP and LP. Immune complexes formed from immunoglobulin G, or IgG, autoantibodies and the altered galactose-deficient IgA1 molecules to which they are directed, together with C3 products, contribute to mesangial proliferation and glomerular inflammation. C3 fragments are found in the same distribution as IgA in up to 90% of cases, with increasing mesangial C3 fragment deposition adversely affecting kidney survival. In contrast, individuals with the protective complement fH related protein 3, or CFHR3-1, deletion have reduced glomerular C3 fragment deposition, believed to result from the more effective AP regulation.

C3G is a rare kidney disease caused by dysregulation of the complement AP. Comprising 2 major subgroups, dense deposit disease, or DDD, and C3 glomerulonephritis, or C3GN, it is characterized by C3-dominant glomerular staining by immunofluorescence, of at least 2 orders of intensity greater (on a 0 – 3+ scale) than any other immune reactant (e.g., immunoglobulins). Complement dysregulation can result from genetic mutations in both fluid-phase and surface-bound negative regulator protein fH, or activating proteins, and may also be acquired in the setting of autoantibodies (e.g., directed against fH or which stabilize the C3 convertases (C3 nephritic factors)). Such autoantibodies are more commonly reported in DDD than C3GN. The uncontrolled AP activation common to all results in glomerular C3 fragment deposition and MAC formation.

Current Treatment Landscape and Unmet Need in LN, IgAN and C3G

LN affects 10-250 individuals per million and predominantly women of reproductive age. With heterogeneous pathophysiology, to which genetic and environmental factors likely contribute, the incidence of LN in the U.S. is higher in black (34%-51%), Hispanic (31%-43%), and Asian (33%-55%) patients, compared with white (14%-23%) patients.

The presence of LN increases mortality, with death attributable to renal involvement occurring in 5-25% of patients with proliferative disease (class III, IV, or III/IV + V) within 5 years of onset. Progression to end-stage kidney disease, or ESKD, occurs in 10-30% of those affected by LN, in whom those with proliferative disease are most at risk. Patients with persistently low isolated C3 hypocomplementemia also have an increased risk of ESKD and death. Critical to renal survival is the attainment of a complete clinical response, associated with 92% kidney survival at 10 years, compared to only 43% in partial responders and 13% in non-responders. Despite the continuing development of immunomodulatory agents and supportive care, the prognosis associated with LN has not improved substantially in the past decade, with ESKD still developing in 5-30% of patients within 10 years of LN diagnosis. In prior studies, repeat biopsies after approximately 6 months of treatment in patients with a complete clinical response showed significant persistent histologic activity in a number of cases.

Patient management is determined by disease severity, with non-proliferative forms of LN (with sub–nephrotic range proteinuria and normal glomerular filtration rate, or GFR) typically treated conservatively with renin angiotensin aldosterone system, or RAAS, blockade and immunomodulation with antimalarials (e.g.,

hydroxychloroquine). Immunosuppression is reserved in these classes for extrarenal manifestations only, while proliferative forms of LN (class III, IV, or III/IV+V) and class V LN with nephrotic syndrome are treated with systemic immunosuppression, combined with high-dose corticosteroids, in an induction phase typically lasting 3 to 6 months. Immunosuppression is continued and gradually reduced in an extended maintenance phase (to reduce the risk of flare), potentially lasting several years. While there have been recent approvals for the treatment of LN (with belimumab and voclosporin), unmet therapeutic need remains due to the limited number of treatment options.

IgAN is the most common primary glomerular disease worldwide, with an estimated incidence of 2-28 individuals per million population per year, dependent on geography. Typically occurring in patients aged between 20 and 30 years, up to 50% of patients progress to ESKD within 20 years of clinical presentation. Patients who undergo transplantation are also at risk of disease recurrence, which occurs in approximately 30% of transplant recipients.

Proteinuria is a recognized risk factor for the progression of IgAN, with time-average proteinuria shown to be the most important predictor of rate of kidney function decline. A quantitative estimate determined that each incremental gram of proteinuria above 1g per day was associated with a 10- to 25-fold more rapid rate of kidney function decline. Reducing proteinuria to below 1g/d is therefore regarded as a treatment target in IgAN, with patients achieving this target observed to have a similar rate of disease progression and kidney survival, irrespective of their initial proteinuria and comparable to those whose proteinuria never exceeded 1g/d.

Current SOC for IgAN as described in the Kidney Disease Improving Global Outcomes 2021 guidelines, consists of RAAS inhibition as first line therapy. However, RAAS inhibition does not affect the underlying disease pathology, with less than half of patients achieving sustained proteinuria levels of < 1g/d (partial remission). The long-term clinical benefit of glucocorticoids, or GCs, has not been established and a 6-month course is only suggested with extreme caution in those at high risk of progressive chronic kidney disease. Antibody depleting strategies, such as rituximab, are not recommended due to the paucity of evidence for their efficacy and both treatment approaches carry safety concerns, which are reflected in current treatment guidelines (e.g., KDIGO).

C3G is a rare kidney disease caused by dysregulation of the complement AP. Comprising 2 major subgroups, DDD and C3GN, it is characterized by C3-dominant glomerular staining by immunofluorescence, of at least 2 orders of intensity greater (on a 0–3+ scale) than any other immune reactant (e.g., immunoglobulins).

With an estimated incidence of 1-3 patients per million, C3GN is reportedly more common than DDD in patients with familial C3G. DDD tends to be diagnosed at a younger age, predominantly in children and young adults, but has been reported in older adults. Presentation varies from nephritic syndrome, asymptomatic and low-grade proteinuria to nephrotic syndrome, or rapidly progressive glomerulonephritis, with 50% progressing to ESKD within 10 years. Isolated C3 hypocomplementemia is seen in most patients.

The treatment paradigm for C3G has not been well established. In addition to the standard conservative measures, such as RAAS inhibition and blood pressure control, other tested approaches have included immunosuppression, plasma exchange and complement inhibition with varying degrees of success, and significant therapeutic need remains.

The Role of Complement in AAV

The ANCA-associated vasculitides are a group of autoimmune disorders characterized by severe inflammation of small blood vessels induced by infiltration of neutrophils into vessel walls. Autoimmunity is characterized by the development of autoantibodies to the neutrophil proteins leukocyte proteinase 3 or myeloperoxidase. Patients with AAV typically present with severe organ-threatening or life-threatening disease, although less severe presentations can also occur.

AP complement activation is detected in AAV tissue lesions and is thought to be a major driver of disease pathogenesis. Complement factor B-or C5-deficient mice do not develop glomerulonephritis in an anti-MPO

induced model of AAV. Biomarkers of AP activation, including deposits of C3d, Bb fragment of factor B, or Bb, and C5b-9 are detected in glomeruli and extraglomerular small vessels of AAV kidneys, and Bb, C3a, C5a, and C5b-9 are elevated in urine and serum from AAV patients. Furthermore, serum Bb correlates with disease activity and outcome, and serum C3c concentration correlates with severity of AAV lesions in the kidney. In AAV, hypocomplementemia, as a result of complement overactivation, is reported to be associated with more advanced renal involvement, higher likelihood of treatment resistance, and worse prognosis.

Current Treatment Landscape and Unmet Need in AAV

AAV is a rare disease with a historical estimated global prevalence of 46 to 421 cases per million persons, depending on the population studied and the specific subtype of AAV. The annual incidence of AAV ranges from 10 to 20 cases per million population, with wide variation across geographic regions and substantial variation in the relative incidence of granulomatosis with polyangiitis, or GPA, and microscopic polyangiitis, or MPA, among Europe, the U.S., and Asia.

The presentation and natural history of AAV can be highly variable, and the spectrum of disease may range from relatively mild and localized to the upper respiratory tract, to life-threatening involvement of multiple organ systems. Additionally, disease activity can fluctuate, and relapses may occur. In the current era with SOC, 1-year mortality rates range from approximately 5% to 20% and 5-year mortality can be as high as 50% for the MPA subtype. The highest mortality rates are observed in patients with severe renal involvement, pulmonary hemorrhage, or other life-threatening complications. Severe AAV requires intensive treatment, including high-dose GCs immunosuppressive agents, and sometimes plasma exchange. Despite aggressive therapy, managing severe disease can be challenging, and many patients experience treatment-resistant disease or suffer from irreversible organ damage prior to attainment of disease remission. Furthermore, infections are a leading cause of adverse outcomes, including death, in patients with AAV, a risk generally ascribed to immune-suppressive effects of the treatment regimens used to achieve disease remission. In recent years, intense focus has been on the likely role of GCs in conferring this risk, and there is general acceptance that the reduction and/or elimination of GC in the treatment of AAV is a desirable goal. Avacopan, a recently approved complement C5a receptor inhibitor for AAV, supports complement involvement in the disease but labelling language states that it “does not eliminate glucocorticoid use” and includes warning and precaution language guiding around its use “in patients with underlying conditions that may predispose them to infection.”

Further Clinical Development of ADX-097: Clinical Trial Plan

Based on the preliminary data from Q32’s Phase 1 clinical trial, Q32 plans to initiate a program in human complement-mediated kidney diseases in 2024 and a Phase 2 clinical trial in AAV in the first half of 2025.

The Renal Basket Program

The planned ADX-097-201 study is designed as a basket program to evaluate the safety, PK, PD, and clinical activity of ADX-097 in patients with LN, IgAN or C3G. The primary objective of the study is to evaluate the safety and tolerability of ADX-097 when administered weekly to patients. Key secondary efficacy and exploratory objectives include clinical markers of disease activity, biomarkers of complement activation and organ injury, and pharmacology.

All disease groups will be open label, with a total of up to 30 participants planned for enrollment. Patients will be dosed with a single SC dose weekly for up to 26 weeks. Participants in each disease group will be open to enroll into the study.

AAV

The planned ADX-097-202 study is a Phase 2 study in adults with AAV, specifically GPA and MPA. The study is composed of 2 parts: an open-label Part A, and a randomized, blinded Part B. Part A of the study will

assess the treatment effect of ADX-097 when given as an adjunct to SOC therapy, with the goal of demonstrating initial proof of clinical efficacy. The intent of Part B of the study is to assess the ability of ADX-097 to reduce or eliminate the use of oral glucocorticoids to support induction of remission.

Expanding Q32's Pipeline of Complement Therapeutics

By leveraging Q32's extensive experience building fusion biologics and Q32's deep understanding of the complement system, Q32 aims to create a sustainable pipeline of novel and localized complement inhibitors that are customized for diverse indications. Q32 expects additional preclinical data in 2024 from Q32's ongoing pipeline efforts in support of advancement of one or more research and development candidates in 2025.

Collaboration and License Agreements

ADX-097—License Agreement – The Regents of the University of Colorado

In August 2017, Q32 entered into an exclusive license agreement, as amended in February 2018, September 2018, and April 2019, or the Colorado License Agreement, with The Regents of the University of Colorado, or Colorado, pursuant to which Q32 obtained worldwide, royalty-bearing, sublicensable licenses under certain patents and know-how owned by Colorado and Medical University of South Carolina, or MUSC, relating to the research, development and commercialization of ADX-097. The licenses granted to Q32 are exclusive with respect to certain patent families and know-how and non-exclusive with certain other patent families and know-how. The licenses granted to Q32 are also subject to certain customary retained rights of Colorado and MUSC and rights of the United States government owing to federal funding giving rise to inventions covered by the licensed patents. Q32 agreed to use commercially reasonable efforts to develop, manufacture and commercialize ADX-097, including by using commercially reasonable efforts to achieve specified development and regulatory milestones by specified dates.

In addition, Q32 agreed to pay Colorado (i) development and sales milestone payments in an aggregate amount of up to $2.2 million per licensed product for the first three products, (ii) tiered royalty rates on cumulative net sales of licensed products in the low single digit percentages, (iii) 15% of sublicense income and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents. Q32's obligation to pay royalties to Colorado commences, on a licensed product-by-licensed product and country-by-country basis, from the first commercial sale of a licensed product in any country and expires on the later of (i) the last to expire valid claim within the licensed patents covering such licensed product in such country, and (ii) 20 years following the effective date of the Colorado License Agreement, or April 2037, or the Royalty Term.

Unless earlier terminated by either party pursuant to its terms, the Colorado License Agreement will expire upon the expiration of the Royalty Term in all countries. Q32 may terminate the Colorado License Agreement for convenience upon providing prior written notice to Colorado. Colorado may terminate the Colorado License Agreement or convert Q32's exclusive license to a non-exclusive license if Q32 breaches certain obligations under the Colorado License Agreement and fails to cure such breach. The Colorado License Agreement will terminate automatically upon Q32's dissolution, insolvency, or bankruptcy.

Bempikibart—License Agreement – Bristol-Myers Squibb Company

In September 2019, Q32 entered into a license agreement, as amended in August 2021 and July 2022, or the BMS License Agreement, with Bristol-Myers Squibb Company, or BMS, pursuant to which Q32 obtained sublicensable licenses from BMS to research, develop and commercialize licensed products, including bempikibart, for any and all uses worldwide. The licenses granted to Q32 are exclusive with respect to BMS's patent rights and know-how relating to certain antibody fragments (including certain fragments of bempikibart) and non-exclusive with respect to BMS's patent rights and know-how relating to the composition of matter and use of a specific region of bempikibart. BMS retained the right for it and its affiliates to use the exclusively licensed patents and know-how for internal, preclinical research purposes. Under the BMS License Agreement,

Q32 is prohibited from engaging in certain clinical development or commercialization of any antibody other than a licensed compound with the same mechanism of action until the earlier of the expiration of Q32's obligation to pay BMS royalties or September 2029.

In consideration for the license, Q32 made an upfront payment to BMS of $8 million, issued 6,628,788 Series A preferred shares to BMS and agreed to use commercially reasonable efforts to develop and commercialize at least one licensed product in key geographic markets. In addition, Q32 agreed to pay BMS (i) development and regulatory milestone payments in aggregate amounts ranging from $32 million to $49 million per indication for the first three indications and commercial milestone payments in an aggregate amount of up to $215 million on net sales of licensed products, (ii) tiered royalties ranging from rates in the mid-single digit percentages to up to 10% of net sales, with increasing rates depending on the cumulative net sales, (iii) up to 60% of sublicense income, which percentage decreases based on the development stage of bempikibart at the time of the sublicensing event, and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents.

Q32's obligation to pay BMS royalties under subsection (ii) above commences, on a licensed product-by-licensed product and country-by-country basis, on the first commercial sale of a licensed product in a country and expires on the later of (x) 12 years from the first commercial sale of such Licensed Product in such country, (y) the last to expire licensed patent right covering bempikibart or such licensed product in such country, and (z) the expiration or regulatory or marketing exclusivity for such licensed product in such country, or the Royalty Term. If Q32 undergoes a change of control prior to certain specified phase of development, the development and milestone payments are subject to increase by a low double-digit percentage and the royalty rates are subject to increase by a low sub-single-digit percentage.

Unless terminated earlier by either party pursuant to its terms, the BMS License Agreement will expire on a country-by-country and licensed product-by-licensed product basis upon the expiration of the last to expire Royalty Term with respect to such licensed product in such country. Either party may terminate the BMS License Agreement for the other party's material breach, subject to a specified notice and cure period. BMS may terminate the BMS License Agreement if Q32 fails to meet its diligence obligations under the BMS License Agreement, for Q32's insolvency, or if Q32 or its affiliates challenges the validity, scope, enforceability, or patentability of any of the licensed patents. Q32 may terminate the BMS License Agreement for any reason upon prior written notice to BMS, with a longer notice period if a licensed product has received regulatory approval. If the BMS Agreement is terminated for Q32's material breach, BMS will regain rights to bempikibart and Q32 must grant BMS an exclusive license under Q32's patent rights covering bempikibart, subject to a low single-digit percentage royalty on net sales of bempikibart payable to Q32 by BMS.

Bempikibart – Collaboration and Option Agreement, Asset Purchase Agreement and Termination Agreement – Horizon Therapeutics Ireland DAC)

From August 2022 until November 2023, Q32 was a party to the Collaboration and Option Agreement, or the Horizon Collaboration Agreement, and the Asset Purchase Agreement, or the Purchase Agreement, and together with the Horizon Collaboration Agreement, the Horizon Agreements each with Horizon Therapeutics Ireland DAC, or Horizon, pursuant to which Q32 received $55.0 million in initial consideration and staged development funding to complete two ongoing Phase 2 trials for bempikibart, and granted Horizon an option to acquire the bempikibart program at a prespecified price, subject to certain adjustments.

In October 2023, Amgen, Inc., or Amgen, completed the acquisition of Horizon Therapeutics public limited company, or Horizon plc. Following its acquisition of Horizon plc, Q32 agreed with Amgen to mutually terminate the Horizon Agreements and in November 2023, Q32 and Horizon entered into a termination agreement, or the Horizon Termination Agreement, pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, Q32 retained all initial consideration and development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to

bempikibart. In consideration for the Horizon Termination Agreement, Q32 agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart.

Competition

Q32 expects to face intense competition from other biopharmaceutical companies that are developing agents for the treatment of autoimmune and inflammatory diseases. Drug development is highly competitive and subject to rapid and significant technological advancements. Q32's ability to compete will significantly depend upon Q32's ability to complete necessary clinical trials and regulatory approval processes, and effectively market any drug that Q32 may successfully develop. Q32's current and potential future competitors include pharmaceutical and biotechnology companies, as well as academic institutions and government agencies. The primary competitive factors that will affect the commercial success of any product candidate for which Q32 may receive marketing approval include efficacy, safety and tolerability profile, dosing convenience, price, coverage, reimbursement and public opinion. Many of Q32's existing or potential competitors have substantially greater financial, technical and human resources than Q32 does and significantly greater experience in the discovery and development of product candidates, as well as in obtaining regulatory approvals of those product candidates in the U.S. and in foreign countries. Q32's current and potential future competitors also have significantly more experience commercializing drugs that have been approved for marketing. Mergers and acquisitions in the biopharmaceutical industry could result in even more resources being concentrated among a small number of Q32's competitors. Accordingly, competitors may be more successful than Q32 in obtaining regulatory approval for therapies and in achieving widespread market acceptance of their drugs. It is also possible that the development of a cure or more effective treatment method for any of Q32's targeted indications by a competitor could render Q32's product candidate non-competitive or obsolete, or reduce the demand for Q32's product candidate before Q32 can recover its development and commercialization expenses.

Manufacturing

Q32 does not currently own or operate facilities for product manufacturing, testing, storage, and distribution. Q32 contracts with third parties for the manufacture and distribution of Q32's product candidates. Because Q32 relies on contract manufacturers, Q32 employs and contracts with personnel with extensive technical, manufacturing, analytical and quality experience. Q32's staff has strong knowledge and understanding of the extensive regulations that govern manufacturing, documentation, quality assurance, and quality control of drug supply that are required to support Q32's regulatory filings.

Intellectual Property

Q32 strives to protect and enhance the proprietary technology, inventions, and improvements that are commercially important to Q32's business, including by seeking, maintaining, and defending patent rights, whether developed internally or licensed from third parties. Q32 also relies on trade secrets and know-how relating to Q32's proprietary technology and product candidates, continuing technological innovation, and in-licensing opportunities to develop, strengthen, and maintain Q32's proprietary position in the field of autoimmune and inflammatory diseases. Q32's future success depends, in part, on Q32's ability to obtain and maintain patent and other proprietary protection for Q32's commercially important technology, inventions, and know-how, defend and enforce Q32's intellectual property rights (in particular Q32's patent rights), preserve the confidentiality of Q32's trade secrets, and operate without infringing, misappropriating, or violating the valid and enforceable patents and proprietary rights of third parties. Q32's ability to stop third parties from making, using, selling, offering to sell, or importing products identical or similar to Q32's may depend on the extent to which Q32 has rights under valid and enforceable patents that cover these activities.

The patent position of biotechnology and pharmaceutical companies are generally uncertain and can involve complex legal, scientific, and factual issues. Q32 cannot predict whether the patent applications Q32 is currently

pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient proprietary protection from competitors. Q32 also cannot ensure that patents will issue with respect to any patent applications that Q32 or Q32's licensors may file in the future, nor can Q32 ensure that any of Q32's owned or licensed patents or future patents will be commercially useful in protecting Q32's product candidates and methods of manufacturing. In addition, the coverage claimed in a patent application may be significantly reduced before a patent is issued, and its scope can be reinterpreted and even challenged after issuance. As a result, Q32 cannot guarantee that any of Q32's products will be protected or remain protectable by valid and enforceable patents. Moreover, any of Q32's patents may be challenged, circumvented, or invalidated by third parties.

Prosecution is a lengthy process, during which the scope of the claims initially submitted for examination by the U.S. Patent and Trademark Office, or USPTO, may be significantly narrowed before issuance, if issued at all. Q32 expects this may be the case with respect to some of Q32's pending patent applications referred to below.

With respect to Q32's ADX-097 program, as of October 1, 2023, Q32 owns one patent family relating to ADX-097, other fusion constructs of anti-C3d antibodies and different complement modulators. This family includes two issued U.S. patents, one allowed U.S. patent application, and 24 pending applications in Australia, Canada, China, Europe, Hong Kong, India, Indonesia, Israel, Japan, South Korea, Malaysia, Mexico, New Zealand, Philippines, Russia, Saudi Arabia, Singapore, South Africa, United Arab Emirates, Qatar, Bahrain, Kuwait, and Oman. The issued patent that covers ADX-097, and any patents that issue from these pending patent applications are expected to expire in December 2039, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.

With respect to bempikibart, as of October 1, 2023, Q32 exclusively licensed from Bristol Myers Squibb, or BMS, one patent family relating to antibodies against the IL-7R alpha subunit and uses thereof comprising one issued U.S. patent, one issued patent in each of Japan, South Korea, and Singapore, one pending U.S. patent application, and 32 pending patent applications in Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Europe, Hong Kong, India, Indonesia, Israel, Japan, South Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Russia, Saudi Arabia, South Africa, Taiwan, Thailand, United Arab Emirates Qatar, Bahrain, Egypt, Kuwait, and Oman. The issued patent is expected to expire in January 2040 and any patents that issue from these pending patent applications are expected to expire in 2040, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad. Q32 also owns two pending U.S. provisional patent applications related to the use of bempikibart for the treatment of atopic dermatitis and hair loss disorders. Any patents that issue from patent applications that claim priority to this U.S. provisional application are expected to expire in 2044, without accounting for potentially available patent term adjustments or extensions.

Q32 also owns one pending U.S. provisional patent application relating to targeted treatment of complement-media disease through local complement inhibition based on detection of a urinary biomarker. Any patents that issue from patent applications that claim priority to this U.S. provisional application are expected to expire in 2044, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.

Q32 has licensed from various institutions additional patent families that are generally related to C3d targeted complement inhibitors, but that do not specifically cover ADX-097:

- One patent family from the Regents of the University of Colorado, or CU, the MUSC Foundation For Research Development, or MUSC, and the U.S. Department of Veterans Affairs, or USDVA, relating to targeted complement inhibitor constructs based on natural antibodies and uses thereof includes two granted Australian patents and one granted patent in each of Israel and Japan. These patents are expected to expire in 2034, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.
- Two patent families from CU, the first relating to MAP44 polypeptides and tissue-targeted fusion constructs and uses thereof, and the second relating to modulating the alternative complement pathway.

The first patent family includes one granted patent in each of Australia and Israel and pending patent applications in the U.S., Canada and Australia. The issued patents and any patents that issue from the pending patent applications are expected to expire in 2035, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad. The second patent family includes three issued U.S. patents, which are expected to expire in 2029, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.

- Two patent families from MUSC and USDVA, the first relating to compositions and methods for treating central nervous system injury using a targeted complement inhibitor and another agent or therapy and the second relating to compositions and methods for treating and preventing transplant-associated injury. The first patent family includes one issued U.S. patent, one pending U.S. patent application, and one pending patent application in Europe. The issued patent and any patents that issue from the pending patent applications are expected to expire in 2037, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad. The second patent family includes one pending U.S. patent application and one pending patent application in Europe. Any patents that issue from these pending patent applications are expected to expire in 2037, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.
- One patent family from CU and MUSC relating to antibodies against the C3d fragment of complement component 3 includes one reissue patent in the U.S. This patent is expected to expire in 2037, without accounting for potentially available patent term adjustments or extensions in the U.S. or abroad.

While Q32 believes that the specific and generic claims contained in Q32's patents provide protection for the claimed compounds, pharmaceutical compositions and methods of use, third parties may nevertheless challenge such claims. If any such claims are invalidated or rendered unenforceable for any reason, Q32 could lose valuable intellectual property rights and Q32's ability to prevent others from competing with Q32's products and technology would be impaired.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which Q32 pursues patent protection, the patent term is 20 years from the earliest date of filing a non-provisional patent application. In the United States, the term of a patent covering an FDA-approved drug may, in certain cases, be eligible for a patent term extension under the Hatch-Waxman Act as compensation for the loss of patent term during the FDA regulatory review process. The period of extension may be up to five years, but the remaining term of a patent cannot be extended beyond a total of 14 years from the date of product approval. Only one patent among those eligible for an extension and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. Similar provisions are available in Europe and in certain other jurisdictions to extend the term of a patent that covers an approved drug. Q32 intends to seek patent term extension for patents covering Q32's products if available.

In addition to patent protection, Q32 may also rely, in some circumstances, on trade secrets to protect Q32's technology. To that end, Q32 also enters into confidentiality agreements with those who have access to Q32's confidential information, including Q32's employees, contractors, consultants, collaborators and advisors. Q32 also enters into agreements requiring assignment of inventions with selected consultants, scientific advisors, and collaborators. However, trade secrets are difficult to protect. These agreements may not provide meaningful protection and may be breached without an adequate remedy for any such breach. In addition, Q32's trade secrets and/or confidential information and know-how may become known or be independently developed by a third party, or misused by any collaborator to whom Q32 discloses such information. Despite any measures taken to protect Q32's intellectual property, unauthorized parties may attempt to copy aspects of Q32's products or obtain or use information that Q32 regards as proprietary. Although Q32 takes steps to protect Q32's proprietary information, third parties may independently develop the same or similar proprietary information or may otherwise gain access to Q32's proprietary information. As a result, Q32 may be unable to meaningfully protect Q32's trade secrets and proprietary information.

Q32's success will also depend in part on not infringing upon the proprietary rights of third parties. It is uncertain whether the issuance of any third-party patent would require Q32 to alter Q32's strategies, obtain licenses, or cease certain activities. Q32's breach of any license agreements or failure to obtain a license to proprietary rights that Q32 needs may have an adverse impact on Q32's business.

For more information and comprehensive risks related to Q32's proprietary technology, inventions, improvements and product candidates, see the section titled "*Risk Factors—Risks Relating to Q32's Intellectual Property*."

Government Regulation

The U.S. Food and Drug Administration, or the FDA, and other regulatory authorities at federal, state and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring and post-approval reporting of biologics such as those we are developing. We, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we are currently conducting and in the future may conduct studies or seek approval or licensure of our product candidates. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or post-market may subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, untitled or warning letters, product recalls or market withdrawals, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement and civil or criminal penalties. Any agency or judicial enforcement action could have a material adverse effect on our business.

U.S. Biologics Regulation

In the United States, biological products are subject to regulation under the Federal Food, Drug, and Cosmetic Act, or the FDCA, and the Public Health Service Act, or the PHSA, and their implementing regulations, as well as other federal, state, local, and foreign statutes and regulations. The process required by the FDA before biologic product candidates may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with applicable regulations, including the FDA's Good Laboratory Practices, or GLP;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before clinical trials may begin and must be updated annually or when significant changes are made;
- approval by an independent institutional review board, or IRB, or independent ethics committee at each clinical site before the trial may be commenced;
- manufacture of the proposed biologic candidate in accordance with current Good Manufacturing Practices, or cGMPs;
- performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, Good Clinical Practice, or GCP, requirements and other clinical-trial related regulations to establish the safety, purity and potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a biologics license application, or BLA, after completion of all pivotal clinical trials;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;

- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with cGMPs, and to assure that the facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and potency, and potential audit of selected clinical investigation sites to assess compliance with GCPs;
- payment of user fees for FDA review of the BLA, unless a waiver is applicable; and
- FDA review and approval of a BLA to permit commercial marketing of the product for a particular indication(s) for use in the United States.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, a sponsor must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol or protocols for preclinical studies and clinical trials. The IND also includes results of animal and *in vitro* studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the product, chemistry, manufacturing and controls information, and any available human data or literature to support the use of the investigational product. An IND must become effective before clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research participants provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site, and must monitor the study until completed.

Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may recommend halting the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing preclinical studies and clinical trials and clinical study results to public registries. Sponsors of clinical trials of FDA-regulated products, including biological products, are required to register and disclose certain clinical trial information, which is publicly available at *www.clinicaltrials.gov.*

A sponsor who wishes to conduct a clinical trial outside of the United States may, but need not, obtain FDA authorization to conduct the clinical trial under an IND. If a foreign clinical trial is not conducted under an IND, the sponsor may submit data from the clinical trial to the FDA in support of a BLA. The FDA will accept a well-designed and well-conducted foreign clinical trial not conducted under an IND if the trial was conducted in accordance with GCP requirements and the FDA is able to validate the data through an onsite inspection if deemed necessary.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- Phase 1. The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- Phase 2. The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.
- Phase 3. The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may be made a condition to approval of the BLA. Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the safety, purity and potency of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data and clinical study investigators. Written IND safety reports must be promptly submitted to the FDA and the investigators for serious and unexpected suspected adverse events, any findings from other studies, tests in laboratory animals or *in vitro* testing that suggest a significant risk for human subjects, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. FDA approval of a BLA must be obtained before a biologic may be marketed in the United States. The BLA must include all relevant data available from pertinent preclinical studies and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. Data can come from company-sponsored clinical studies intended to test the safety and effectiveness of the product, or from a number of alternative sources, including studies initiated and sponsored by investigators. The submission of a BLA requires payment of a substantial application user fee to the FDA, unless a waiver or exemption applies.

In addition, under the Pediatric Research Equity Act, or PREA, a BLA or supplement to a BLA must contain data to assess the safety and effectiveness of the biological product candidate for the claimed indications

in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The Food and Drug Administration Safety and Innovation Act requires that a sponsor who is planning to submit a marketing application for a biological product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration submit an initial pediatric study plan, or PSP, within sixty days after an end-of-Phase 2 meeting or, if there is no such meeting, as early as practicable before the initiation of the Phase 3 or Phase 2/3 study as may be agreed between the sponsor and FDA. The initial PSP must include an outline of the pediatric study or studies that the
sponsor plans to conduct, including study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. The FDA and the sponsor must reach an agreement on the PSP. A sponsor can submit amendments to an agreed-upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from preclinical studies, early phase clinical trials and/or other clinical development programs. Unless otherwise required by regulation, PREA does not apply to any biological product for an indication for which orphan designation has been granted.

Within 60 days following submission of the application, the FDA reviews the BLA to determine if it is substantially complete before the agency accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. Once a BLA has been accepted for filing, the FDA's goal is to review standard applications within ten months after the filing date, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process may also be extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed or held meets standards designed to assure the product's continued safety, purity and potency. The FDA may convene an advisory committee to provide clinical insight on application review questions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving a BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it typically will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response Letter will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response Letter without first conducting required inspections, testing submitted product lots and/or reviewing proposed labeling. In issuing the Complete Response Letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. If a Complete Response Letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, or withdraw the application or request an opportunity for a hearing. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre-and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post-market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. The fast track program is intended to expedite or facilitate the process for reviewing new products that meet certain criteria. Specifically, new product candidates are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product candidate and the specific indication for which it is being studied. The sponsor of a fast track product candidate has opportunities for more frequent interactions with the review team during product development and, once a BLA is submitted, the product candidate may be eligible for priority review. A fast track product candidate may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

A product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product candidate can receive breakthrough therapy designation if preliminary clinical evidence indicates that the product candidate, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product, including involvement of senior managers.

Any marketing application for a biologic submitted to the FDA for approval, including a product candidate with a fast track designation and/or breakthrough therapy designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product candidate is eligible for priority review if it has the potential to provide a significant improvement in the treatment, diagnosis or prevention of a serious disease or condition. For original BLAs, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (as compared to ten months under standard review).

Additionally, product candidates studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product candidate has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated

approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies with due diligence to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022, or FDORA, the FDA may require, as appropriate, that such studies be underway prior to approval or within a specific time period after the date of approval for a product granted accelerated approval. Under FDORA, the FDA has increased authority for expedited procedures to withdraw approval of a product or indication approved under accelerated approval if the sponsor fails to conduct the required post-marketing studies or if such studies fail to verify the predicted clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Fast track designation, breakthrough therapy designation and priority review do not change the standards for approval but may expedite the development or approval process. Even if a product candidate qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Orphan Drug Designation and Exclusivity

Under the Orphan Drug Act of 1983, the FDA may grant orphan drug designation to a product candidate intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or 200,000 or more individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that product candidate. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity by means of greater effectiveness, greater safety or providing a major contribution to patient care or if the holder of the orphan drug exclusivity cannot assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the product was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan drug designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. As part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. After a BLA is approved for a biological

product, the product also may be subject to official lot release. If the product is subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency and effectiveness of biologics. After approval, most
changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which the FDA assesses an annual program fee for each product identified in an approved BLA. Biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMPs, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by the sponsor and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for

many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Biosimilars and Reference Product Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are highly similar, or "biosimilar," to or interchangeable with an FDA-approved reference biological product. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, is generally shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. A product shown to be biosimilar or interchangeable with an FDA-approved reference biological product may rely in part on the FDA's previous determination of safety and effectiveness for the reference product for approval, which can potentially reduce the cost and time required to obtain approval to market the product.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. FDA-approved interchangeable biosimilars may be substituted for the reference product without the intervention of the prescribing health care provider, subject to state laws, which differ by state.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In July 2018, the FDA announced an action plan to encourage the development and efficient review of biosimilars, including the establishment of a new office within the agency that will focus on therapeutic biologics and biosimilars. On December 20, 2020, Congress amended the PHSA as part of the COVID-19 relief bill to further simplify the biosimilar review process by making it optional to show that conditions of use proposed in labeling have been previously approved for the reference product, which used to be a requirement of the application. In addition, government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

As discussed below, the Inflation Reduction Act of 2022, or IRA, is a significant new law that intends to foster generic and biosimilar competition and to lower drug and biologic costs.

Other Healthcare Laws and Compliance Requirements

Pharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business. Such laws include, without limitation: the federal Anti-Kickback Statute, or AKS; the federal False Claims Act, or FCA; the Health Insurance Portability and Accountability Act of 1996, or HIPAA, and similar foreign, federal and state fraud, abuse and transparency laws.

The AKS prohibits, among other things, persons and entities from knowingly and willfully soliciting, receiving, offering or paying remuneration, to induce, or in return for, either the referral of an individual, or the purchase, lease, order, arrangement, or recommendation of an item or service for which payment may be made under any federal healthcare program. The term remuneration has been interpreted broadly to include anything of value. The AKS has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand, and prescribers and purchasers on the other. The government often takes the position that to violate the AKS, only one purpose of the remuneration need be to induce referrals, even if there are other legitimate purposes for the remuneration. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from AKS prosecution, but they are drawn narrowly and practices that involve remuneration, such as consulting agreements, that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the AKS. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Violations are subject to civil and criminal fines and penalties for each violation, plus up to three times the remuneration involved, imprisonment, and exclusion from government healthcare programs. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act or federal civil monetary penalties.

Civil and criminal false claims laws, including the FCA, and civil monetary penalty laws, which impose criminal and civil penalties and can be enforced through civil whistleblower or qui tam actions, prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment of federal government funds, including in federal healthcare programs, that are false or fraudulent; knowingly making, using or causing to be made or used, a false statement of record material to a false or fraudulent claim or obligation to pay or transmit money or property to the federal government or knowingly concealing or knowingly and improperly avoiding or decreasing an obligation to pay money to the federal government. Pharmaceutical and other healthcare companies have been prosecuted under these laws for engaging in a variety of different types of conduct that "caused" the submission of false claims to federal healthcare programs. Under the AKS, for example, a claim resulting from a violation of the AKS is deemed to be a false or fraudulent claim for purposes of the FCA. Manufacturers can be held liable under the federal False Claims Act even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The federal False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the federal False Claims Act and to share in any monetary recovery.

HIPAA created additional federal criminal statutes that prohibit, among other things, executing a scheme to defraud any healthcare benefit program, including private third-party payors, and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements or representations relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH and their respective implementing regulations, including the Final Omnibus Rule published in January 2013, which impose requirements on certain covered healthcare providers, health plans, and healthcare clearinghouses as well as their respective business associates, independent contractors or agents of covered entities, that perform services for them that involve the creation, maintenance, receipt, use, or disclosure of, individually identifiable health information relating to the privacy, security and transmission of individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, there may be additional federal, state and non-U.S. laws which govern the privacy and security of health and other personal information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

The FDCA addresses, among other things, the design, production, labeling, promotion, manufacturing, and testing of drugs, biologics and medical devices, and prohibits such acts as the introduction into interstate commerce of adulterated or misbranded drugs or devices. The PHSA also prohibits the introduction into interstate commerce of unlicensed or mislabeled biological products.

The U.S. federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to annually report to the Centers for Medicaid & Medicare Services, or CMS, information related to payments or other transfers of value made to various healthcare professionals including physicians, certain other licensed health care practitioners, and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

We are also subject to federal price reporting laws and federal consumer protection and unfair competition laws. Federal price reporting laws require manufacturers to calculate and report complex pricing metrics to government programs, where such reported prices may be used in the calculation of reimbursement and/ or discounts on approved products. Federal consumer protection and unfair competition laws broadly regulate marketplace activities and activities that potentially harm consumers.

Further, we are subject to additional similar U.S. state and foreign law equivalents of each of the above federal laws, which, in some cases, differ from each other in significant ways, and may not have the same effect, thus complicating compliance efforts. If our operations are found to be in violation of any of such laws or any other governmental regulations that apply, it may be subject to penalties, including, without limitation, civil, criminal and administrative penalties, damages, fines, exclusion from government-funded healthcare programs, such as Medicare and Medicaid or similar programs in other countries or jurisdictions, integrity oversight and reporting obligations to resolve allegations of non-compliance, disgorgement, individual imprisonment, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of its operations.

Data Privacy and Security

Numerous state, federal and foreign laws govern the collection, dissemination, use, access to, confidentiality and security of personal information, including health-related information. As our operations and business grow, we may become subject to or affected by U.S. federal and state laws and regulations, including the Health Information Portability and Accountability Act of 1996, and its implementing regulations, as amended, or HIPAA, that govern the collection, use, disclosure, and protection of health-related and other personal information. In California the California Consumer Protection Act, or CCPA, which went into effect on January 1, 2020 and was amended effective January 1, 2023, establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the State of California, imposing special rules on the collection of consumer data from minors, and

creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. While clinical trial data and information governed by HIPAA are currently exempt from the current version of the CCPA, other personal information may be applicable and possible changes to the CCPA may broaden its scope. Other states, including Virginia (effective January 1, 2023), Colorado (effective July 1, 2023), Connecticut (effective July 1, 2023), and Utah (effective December 31, 2023) have passed privacy legislation and more states may do so in the future, including Iowa, where the Iowa state legislature passed a comprehensive privacy legislation on March 15, 2023. State and non-U.S. laws, including for example the EU General Data Protection Regulation, also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. Failure to comply with these laws, where applicable, can result in the imposition of significant civil and/or criminal penalties and private litigation. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to complicate compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing.

Coverage and Reimbursement

In the United States and markets in other countries, patients generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Our ability to successfully commercialize its product candidates will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow it to establish or maintain pricing sufficient to realize a sufficient return on its investment. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels.

Significant uncertainty exists as to the coverage and reimbursement status of any pharmaceutical or biological product for which we obtain regulatory approval. Sales of any product, if approved, depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement, if any, for such product by third-party payors. Decisions regarding whether to cover any of its product candidates, if approved, the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. Further, no uniform policy for coverage and reimbursement exists in the United States, and coverage and reimbursement can differ significantly from payor to payor. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. As a result, the coverage determination process is often a time-consuming and costly process that will require it to provide scientific and clinical support for the use of its product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Factors payors consider in determining reimbursement are based on whether the product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Third-party payors are increasingly challenging the prices charged for medical products and services, examining the medical necessity and reviewing the cost effectiveness of pharmaceutical or biological products,

medical devices and medical services, in addition to questioning safety and efficacy. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product that receives approval. Decreases in third-party reimbursement for any product or a decision by a third-party not to cover a product could reduce physician usage and patient demand for the product.

For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization. In addition, companion diagnostic tests require coverage and reimbursement separate and apart from the coverage and reimbursement for their companion pharmaceutical or biological products. Similar challenges to obtaining coverage and reimbursement, applicable to pharmaceutical or biological products, will apply to companion diagnostics.

In addition, net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that reimbursement will be available for any product candidate that it commercializes and, if reimbursement is available, the level of reimbursement. In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price, or ASP, and best price. Penalties may apply in some cases when such metrics are not submitted accurately and timely. Further, these prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs.

Finally, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the European Union, or EU, provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of its product candidates. Historically, products launched in the EU do not follow price structures of the U.S. and generally prices tend to be significantly lower.

Healthcare Reform

The United States and some foreign jurisdictions are considering or have enacted a number of reform proposals to change the healthcare system. There is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by federal and state legislative initiatives, including those designed to limit the pricing, coverage, and reimbursement of pharmaceutical and biopharmaceutical products, especially under government-funded health care programs, and increased governmental control of drug pricing.

The ACA, which was enacted in 2010, substantially changed the way healthcare is financed by both governmental and private insurers in the United States, and significantly affected the pharmaceutical industry. The ACA contains a number of provisions of particular import to the pharmaceutical and biotechnology

industries, including, but not limited to, those governing enrollment in federal healthcare programs. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA, and we expect there will be additional challenges and amendments to the ACA in the future.

Other legislative changes have been proposed and adopted since the ACA was enacted. For example, on March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, currently set at 100% of a drug's average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024. The Budget Control Act of 2011 and subsequent legislation, among other things, created measures for spending reductions by Congress that include aggregate reductions of Medicare payments to providers of 2% per fiscal year, which remain in effect through 2031. Due to the Statutory Pay-As-You-Go Act of 2010, estimated budget deficit increases resulting from the American Rescue Plan Act of 2021, and subsequent legislation, Medicare payments to providers will be further reduced starting in 2025 absent further legislation. The U.S. American Taxpayer Relief Act of 2012 further reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

In addition, the Bipartisan Budget Act of 2018, among other things, amended the Medicare Act (as amended by the ACA) to increase the point-of-sale discounts that manufacturers must agree to offer under the Medicare Part D coverage discount program to 70% off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs being covered under Medicare Part D. Further, on May 30, 2018, the Right to Try Act, was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase 1 clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a pharmaceutical manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state measures designed to, among other things, reduce the cost of prescription drugs, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. For example, in May 2019, CMS adopted a final rule allowing Medicare Advantage Plans the option to use step therapy for Part B drugs, permitting Medicare Part D plans to apply certain utilization controls to new starts of five of the six protected class drugs, and requiring the Explanation of Benefits for Part D beneficiaries to disclose drug price increases and lower cost therapeutic alternatives.

In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. The IRA includes several provisions that may impact our business to varying degrees, including provisions that reduce the out-of-pocket spending cap for Medicare Part D beneficiaries from $7,050 to $2,000 starting in 2025, thereby effectively eliminating the coverage gap; impose new manufacturer financial liability on certain drugs under Medicare Part D, allow the U.S. government to negotiate Medicare Part B and Part D price caps for certain high-cost drugs and biologics without generic or biosimilar competition; require companies to pay rebates to Medicare for certain drug prices that increase faster than inflation; and delay until January 1, 2032 the implementation of the HHS rebate rule that would have limited the fees that pharmacy benefit managers can charge. Further, under the IRA, orphan drugs are exempted from the Medicare drug price negotiation program, but only if they have one rare disease designation and for which the only approved indication is for that disease or condition. If a product receives multiple rare disease designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The implementation of the IRA is currently subject to ongoing litigation challenging the constitutionality of the IRA's Medicare drug price negotiation program. The effects of the IRA on its business and the healthcare industry in general is not yet known.

President Biden has also issued multiple executive orders that have sought to reduce prescription drug costs. In February 2023, HHS also issued a proposal in response to an October 2022 executive order from President Biden that includes a proposed prescription drug pricing model that will test whether targeted Medicare payment adjustments will sufficiently incentivize manufacturers to complete confirmatory trials for drugs approved through FDA's accelerated approval pathway. Although a number of these and other proposed measures may require authorization through additional legislation to become effective, and the Biden administration may reverse or otherwise change these measures, both the Biden administration and Congress have indicated that they will continue to seek new legislative measures to control drug costs.

Notwithstanding the IRA and President Biden's executive orders, continued legislative and enforcement interest exists in the United States with respect to specialty drug pricing practices. Specifically, we expect regulators to continue pushing for transparency to drug pricing, reducing the cost of prescription drugs under Medicare, reviewing the relationship between pricing and manufacturer patient programs, and reforming government program reimbursement methodologies for drugs.

Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain drug access and marketing cost disclosure and transparency measures, and designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, financial condition, results of operations and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for its drugs or put pressure on its drug pricing, which could negatively affect our business, financial condition, results of operations and prospects.

Other Government Regulation Outside of the United States

Regulation Outside of the United States

EU Drug Development

In addition to regulations in the United States, we are subject to a variety of regulations in other jurisdictions governing clinical studies, commercial sales, and distribution of our products. Most countries outside of the United States require that clinical trial applications be submitted to and approved by the local regulatory authority for each clinical study. In the EU, for example, an application must be submitted to the national competent authority and an independent ethics committee in each country in which we intend to conduct clinical trials, much like the FDA and IRB, respectively. Under the new Clinical Trials Regulation (EU) No 536/2014, which replaced the Clinical Trials Directive 2001/20/EC on January 31, 2022, a single application is now made through the Clinical Trials Information System for clinical trial authorization in up to 30 EU/EEA countries at the same time and with a single set of documentation.

The assessment of applications for clinical trials is divided into two parts (Part I contains scientific and medicinal product documentation and Part II contains the national and patient-level documentation). Part I is assessed by a coordinated review by the competent authorities of all EU Member States in which an application for authorization of a clinical trial has been submitted (Member States Concerned) of a draft report prepared by a Reference Member State. Part II is assessed separately by each Member State Concerned. The role of the relevant ethics committees in the assessment procedure will continue to be governed by the national law of the Member State Concerned, however overall related timelines are defined by the Clinical Trials Regulation. The new Clinical Trials Regulation also provides for simplified reporting procedures for clinical trial sponsors.

EU Drug Review and Approval

In addition, whether or not we obtain FDA approval for a product, we must obtain approval of a product by the comparable regulatory authorities of countries outside the United States before we can commence marketing

of the product in those countries. The approval process and requirements vary from country to country, so the number and type of nonclinical, clinical, and manufacturing studies needed may differ, and the time may be longer or shorter than that required for FDA approval.

To obtain regulatory approval for our medicinal products under the EU regulatory system, a marketing authorization application, or MAA, needs to be submitted. There are a number of potential routes open to obtain a marketing authorization, or MA. The centralized procedure allows applicants to obtain a MA that is valid throughout the EU, and the additional Member States of the European Economic Area (Iceland, Liechtenstein and Norway), or EEA. It is compulsory for medicinal products manufactured using biotechnological processes, orphan medicinal products, advanced therapy medicinal products (gene-therapy, somatic cell-therapy or tissue-engineered medicines) and human products containing a new active substance which is not authorized in the EU and which is intended for the treatment of HIV, AIDS, cancer, neurodegenerative disorders, auto-immune and other immune dysfunctions, viral diseases or diabetes. The centralized procedure is optional for any other products containing new active substances not authorized in the EU or for products which constitute a significant therapeutic, scientific, or technical innovation or for which a centralized authorization is in the interests of patients at EU level. When a company wishes to place on the market a medicinal product that is eligible for the centralized procedure, it sends an application directly to the European Medicines Agency, or EMA, to be assessed by the Committee for Medicinal Products for Human Use, or CHMP. The CHMP is responsible for conducting the assessment of whether a medicine meets the required quality, safety, and efficacy requirements, and whether the product has a positive risk/benefit profile. The procedure results in a European Commission decision, which is valid in all EU Member States. The centralized procedure is as follows: full copies of the MAA are sent to a rapporteur and a co-rapporteur designated by the competent EMA scientific committee. They coordinate the EMA's scientific assessment of the medicinal product and prepare draft reports. Once the draft reports are prepared (other experts might be called upon for this purpose), they are sent to the CHMP, whose comments or objections are communicated to the applicant. The rapporteur acts as an EMA contact person for the applicant and continues to play this role, even after the MA has been granted.

The rapporteur and co-rapporteur then assess the applicant's replies, submit them for discussion to the CHMP, and taking into account the conclusions of this debate, prepare a final assessment report. Once the evaluation is completed, the CHMP gives a favorable or unfavorable opinion as to whether to grant the authorization. When the opinion is favorable, it shall include the draft summary of product characteristics, or SmPC, the package leaflet, and the texts proposed for the various packaging materials. The time limit for the evaluation procedure is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP). The EMA then has fifteen days to forward its opinion to the European Commission, which will make a binding decision on the grant of an MA within 67 days of the receipt of the CHMP opinion.

There are two other procedures in the EU for the grant of an MA in multiple EU Member States. The decentralized procedure provides for approval by one or more other, or Concerned Member States, of an assessment of an application performed by one Member State, known as the Reference Member State. Under this procedure, an applicant submits an application, or dossier, and related materials including a draft SmPC, and draft labeling and package leaflet, to the Reference Member State and Concerned Member States. The Reference Member State prepares a draft assessment and drafts of the related materials within 120 days after receipt of a valid application. Within 90 days of receiving the Reference Member State's assessment report, each Concerned Member State must decide whether to approve the assessment report and related materials. If a Member State cannot approve the assessment report and related materials on the grounds of potential serious risk to the public health, the disputed points may eventually be referred to the European Commission, whose decision is binding on all Member States. Where a product has already been authorized for marketing in a EU Member State, this national MA can be recognized in other Member States through the mutual recognition procedure.

EU New Chemical Entity Exclusivity

In the EU, innovative medicinal products approved on the basis of a complete and independent data package qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market

exclusivity. The data exclusivity, if granted, prevents generic or biosimilar applicants from referencing the innovator's preclinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar MA in the EU, during a period of eight years from the date on which the reference product was first authorized in the EU. During the additional two-year period of market exclusivity, a generic or biosimilar MAA can be submitted, and the innovator's data may be referenced, but no generic or biosimilar product can be placed on the EU market until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of 11 years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are determined to bring a significant clinical benefit in comparison with currently approved therapies. There is no guarantee that a product will be considered by the EMA to be an innovative medicinal product, and products may not qualify for data exclusivity. Even if a product is considered to be an innovative medicinal product so that the innovator gains the prescribed period of data exclusivity, however, another company could nevertheless also market another version of the product if such company obtained an MA based on an MAA with a complete and independent data package of pharmaceutical tests, preclinical tests and clinical trials.

EU Orphan Designation and Exclusivity

The criteria for designating an "orphan medicinal product" in the EU are similar in principle to those in the United States. Under Article 3 of Regulation (EC) 141/2000, a medicinal product may be designated as an orphan medicinal product if it is intended for the diagnosis, prevention, or treatment of a life-threatening or chronically debilitating condition that affects no more than five in 10,000 persons in the EU when the application is made. In addition, orphan designation can be granted if the product is intended for a life threatening, seriously debilitating, or serious and chronic condition in the EU and, without incentives, it is unlikely that sales of the product in the EU would be sufficient to justify the necessary investment in its development. Orphan designation is only available if there is no other satisfactory method approved in the EU of diagnosing, preventing, or treating the applicable orphan condition, or if such a method exists, the proposed orphan medicinal product will be of significant benefit to patients affected by such condition, as defined in Regulation (EC) 847/2000.

Orphan designation provides opportunities for fee reductions, protocol assistance, and access to the centralized procedure. Fee reductions are limited to the first year after an MA, except for small and medium enterprises. In addition, if a product which has an orphan designation subsequently receives a centralized MA for the indication for which it has such designation, the product is entitled to orphan market exclusivity, which means the EMA may not approve any other application to market a similar medicinal product for the same indication for a period of ten years. A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The exclusivity period may be reduced to six years if, at the end of the fifth year, it is shown that the designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity. Additionally, an MA may be granted to a similar medicinal product for the same indication at any time if:

- the second applicant can establish that its product, although similar to the authorized product, is safer, more effective or otherwise clinically superior;
- the MA holder of the authorized product consents to a second orphan medicinal product application; or
- the MA holder of the authorized product cannot supply enough orphan medicinal product.

EU Pediatric Investigation Plan

A pediatric investigation plan, or PIP, in the EU is aimed at ensuring that the necessary data are obtained to support the authorization of a medicine for children, through studies in children. All applications for MAs for new medicines have to include the results of studies as described in an agreed PIP, unless the medicine is exempt because of a deferral or waiver. This requirement also applies when an MA holder wants to add a new indication,

pharmaceutical form, or route of administration for a medicine that is already authorized and covered by intellectual property rights. Several rewards and incentives for the development of pediatric medicines for children are available in the EU. Medicines authorized across the EU with the results of studies from a PIP included in the product information are eligible for an extension of their supplementary protection certificate, or SPC, by six months (provided an application for such extension is made at the same time as filing the SPC application for the product, or at any point up to two years before the SPC expires). This is the case even when the studies' results are negative. For orphan medicinal products, the incentive is an additional two years of market exclusivity. Scientific advice and protocol assistance at the EMA are free of charge for questions relating to the development of pediatric medicines. Medicines developed specifically for children that are already authorized but are not protected by a patent or supplementary protection certificate are eligible for a pediatric-use MA, or PUMA. If a PUMA is granted, the product will benefit from ten years of market protection as an incentive.

PRIME Scheme

In March 2016, the EMA launched an initiative, the PRIority Medicines, or PRIME, scheme, to facilitate development of product candidates in indications, often rare, for which few or no therapies currently exist. The PRIME scheme is intended to encourage development of products in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation reviewed under the centralized procedure. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies on the basis of compelling non-clinical data and tolerability data from initial clinical trials. Many benefits accrue to sponsors of product candidates with PRIME designation, including but not limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and potentially accelerated MAA assessment once a dossier has been submitted. Importantly, once a candidate medicine has been selected for the PRIME scheme, a dedicated contact and rapporteur from the CHMP or from the Committee for Advanced Therapies, or CAT, are appointed early in the PRIME scheme facilitating increased understanding of the product at the EMA's committee level. An initial meeting with the CHMP/CAT rapporteur initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies. PRIME eligibility does not change the standards for product approval, and there is no assurance that any such designation or eligibility will result in expedited review or approval.

The aforementioned EU rules are generally applicable in the EEA.

Reform of the Regulatory Framework in the EU

The European Commission introduced legislative proposals in April 2023, that if implemented, will replace the current regulatory framework in the EU for all medicines (including those for rare diseases and for children). The European Commission has provided the legislative proposals to the European Parliament and the European Council for their review and approval. The European Parliament and the European Council may propose amendments to the proposals. Once the proposals are approved (with or without amendment), they will be adopted into EU law.

Brexit and the Regulatory Framework in the United Kingdom

The United Kingdom left the EU on January 31, 2020, and the United Kingdom and the EU have concluded a trade and cooperation agreement, or TCA, which was provisionally applicable since January 1, 2021 and has been formally applicable since May 1, 2021.

The TCA includes specific provisions concerning pharmaceuticals, which include the mutual recognition of GMP, inspections of manufacturing facilities for medicinal products and GMP documents issued, but does not provide for wholesale mutual recognition of United Kingdom and EU pharmaceutical regulations. At present, Great Britain has implemented EU legislation on the marketing, promotion and sale of medicinal products through the

Human Medicines Regulations 2012 (as amended). Except in respect of the new EU Clinical Trials Regulation, the regulatory regime in Great Britain therefore largely aligns with current EU medicines regulations, however it is possible that these regimes will diverge more significantly in future now that Great Britain's regulatory system is independent from the EU and the TCA does not provide for mutual recognition of United Kingdom and EU pharmaceutical legislation. However, notwithstanding that there is no wholesale recognition of EU pharmaceutical legislation under the TCA, under a new framework mentioned below which will be put in place by the Medicines and Healthcare products Regulatory Agency, or MHRA, the United Kingdom's medicines regulator, from January 1, 2024, the MHRA has stated that it will take into account decisions on the approval of MAs from the EMA (and certain other regulators) when considering an application for a Great Britain MA.

On February 27, 2023, the United Kingdom government and the European Commission announced a political agreement in principle to replace the Northern Ireland Protocol with a new set of arrangements, known as the "Windsor Framework". This new framework fundamentally changes the existing system under the Northern Ireland Protocol, including with respect to the regulation of medicinal products in the United Kingdom. In particular, the MHRA will be responsible for approving all medicinal products destined for the United Kingdom market (i.e., Great Britain and Northern Ireland), and the EMA will no longer have any role in approving medicinal products destined for Northern Ireland. A single United Kingdom-wide MA will be granted by the MHRA for all medicinal products to be sold in the United Kingdom, enabling products to be sold in a single pack and under a single authorization throughout the United Kingdom. The Windsor Framework was approved by the EU-United Kingdom Joint Committee on March 24, 2023, so the United Kingdom government and the EU will enact legislative measures to bring it into law. On June 9, 2023, the MHRA announced that the medicines aspects of the Windsor Framework will apply from January 1, 2025.

The MHRA has introduced changes to national licensing procedures, including procedures to prioritize access to new medicines that will benefit patients, an accelerated assessment procedure and new routes of evaluation for novel products and biotechnological products. All existing EU MAs for centrally authorized products were automatically converted (grandfathered) into United Kingdom MAs free of charge on January 1, 2021. For a period of three years from January 1, 2021, the MHRA may rely on a decision taken by the European Commission on the approval of a new MA in the centralized procedure, in order to more quickly grant a new Great Britain MA. A separate application will, however, still be required. On January 24, 2023, the MHRA announced that a new international recognition framework will be put in place from January 1, 2024, which will have regard to decisions on the approval of MAs made by the EMA and certain other regulators when determining an application for a new Great Britain MA. There is now no pre-MA orphan designation in Great Britain. Instead, the MHRA reviews applications for orphan designation in parallel to the corresponding MAA. The criteria are essentially the same, but have been tailored for the Great Britain market, i.e., the prevalence of the condition in Great Britain (rather than the EU) must not be more than five in 10,000. Should an orphan designation be granted, the period of market exclusivity will be set from the date of first approval of the product in Great Britain.

Human Capital

As of December 31, 2023, Q32 had 35 full-time employees, of which 7 have M.D. or Ph.D. degrees. Within Q32's workforce, 26 employees are engaged in research and development and 9 are engaged in general management and administration. None of Q32's employees are represented by labor unions or covered by collective bargaining agreements. Q32 considers its relationship with its employees to be good.

Q32's human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating Q32's existing and new employees, advisors and consultants. The principal purposes of Q32's equity incentive plans are to attract, retain and reward personnel through the granting of equity-based compensation awards in order to increase shareholder value and the success of Q32's company by motivating such individuals to perform to the best of their abilities and achieve Q32's objectives.

Facilities

Q32's principal office is located at 830 Winter Street, Waltham, Massachusetts 02451, where Q32 leases approximately 15,771 square feet of office space. The lease term began in January 2022 and will end in December 2031. Q32 believes that this facility will be adequate to meet Q32's near-term needs. If required, Q32 believes that suitable additional or substitute space will be available in the future on commercially reasonable terms to accommodate any such expansion Q32's operations.

Legal Proceedings

From time to time, Q32 may become involved in legal proceedings arising from the ordinary course of business. Q32 records a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated.

HOMOLOGY MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of Homology's financial condition and results of operations together with the section titled "Unaudited Pro Forma Combined Financial Data" and Homology's consolidated financial statements and related notes included elsewhere in this proxy statement/prospectus. This discussion and other parts of this proxy statement/prospectus contain forward-looking statements that involve risks and uncertainties, such as its plans, objectives, expectations, intentions, and beliefs. Homology's actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section titled "Risk Factors—Risks Related to Homology's Business" included elsewhere in this proxy statement/prospectus.

Overview

Homology is a clinical-stage genetic medicines company historically focused on transforming the lives of patients suffering from rare genetic diseases with significant unmet medical needs by addressing the underlying cause of the disease. Homology's proprietary platform is designed to utilize its human hematopoietic stem cell-derived adeno-associated virus vectors, or AAVHSCs, to precisely and efficiently deliver single administration genetic medicines *in vivo* through a nuclease-free gene editing modality, gene therapy, or gene therapy to express antibodies platform, or GTx-mAb, which is designed to produce antibodies throughout the body.

In July 2023, Homology completed a review of its business and its Board of Directors approved a plan to explore, review and evaluate a range of potential strategic options available to it, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Based on the financing environment and the anticipated clinical development timeline for its lead program, HMI-103, Homology stopped further development of its programs and reduced its workforce by 86% to significantly reduce its ongoing operating costs as it evaluates strategic alternatives.

After a comprehensive review of strategic alternatives, on November 16, 2023, Homology entered into an Agreement and Plan of Merger, or the Merger Agreement, with Q32 Bio Inc., a Delaware corporation, or Q32, and Kenobi Merger Sub, Inc., a Delaware corporation and Homology's direct, wholly owned subsidiary, or Merger Sub, pursuant to which, among other matters, and subject to the satisfaction or waiver of the conditions set forth in the Merger Agreement, Merger Sub will merge with and into Q32, with Q32 continuing as Homology's wholly owned subsidiary and the surviving corporation of the merger, or the Merger. Homology's future operations are highly dependent on the success of the Merger and there can be no assurance that the Merger will be successfully consummated.

Homology's former clinical programs include: HMI-103, an investigational gene editing candidate for the treatment of patients with phenylketonuria, or PKU, HMI-203, an investigational gene therapy candidate for the treatment of patients with mucopolysaccharidosis type II (MPS II), or Hunter syndrome and HMI-102, an investigational gene therapy candidate for the treatment of adult patients with PKU. Homology's former preclinical programs include: HMI-104, a GTx-mAb gene therapy candidate for the treatment of patients with paroxysmal nocturnal hemoglobinuria, or PNH, and HMI-204, a gene therapy candidate for metachromatic leukodystrophy, or MLD. Homology is currently exploring strategic alternatives for HMI-103 (Adult/Pediatric PKU), HMI-204 (MLD) and Capsids and AAVHSC Platform, including the sale of these programs.

In September 2023, Homology withdrew its IND for HMI-102 (Adult PKU), which the FDA formally acknowledged in November 2023. Also in September 2023, Homology requested that the FDA place its HMI-103 (Adult/Pediatric PKU) and HMI-203 (Hunter Syndrome) programs on inactive status, which requests remain pending. Homology withdrew its IND for HMI-203 in December 2023. In August 2023, Homology withdrew its CTA for HMI-203 in Canada. All clinical trial sites have been notified that all studies conducted by Homology

for its programs have been terminated and have been duly notified of their responsibilities. Homology has also withdrawn all orphan drug designations for its programs in both the United States and the EU.

HMI-103: Gene Editing Candidate for the Treatment of Patients with PKU

In September 2023, Homology inactivated its pheEDIT Phase 1 gene editing clinical trial evaluating HMI-103 in adults with classical PKU (NCT05222178). In October 2023, Homology reported clinical data from the first dose cohort in the pheEDIT trial. As of the data cut-off date of September 14, 2023, HMI-103 was generally well-tolerated in all three participants with no serious adverse events, and the majority of treatment-related adverse events were mild and transient. All liver function tests remained in the normal range during the prophylactic immunosuppression regimen incorporating the T-cell inhibitor tacrolimus in combination with corticosteroid. Participant 1 experienced a reduction in plasma phenylalanine, or Phe, levels to below the U.S. American College of Medical Genetics and Genomics PKU treatment guideline threshold of <360 µmol/L, and the majority of Phe levels were below 360 µmol/L through 39 weeks post-dose, including after the initiation of dietary protein supplementation. Participant 2 experienced a meaningful plasma Phe reduction of 50% at 23 weeks post-dose. Participant 3 experienced a meaningful plasma Phe reduction of 60% at 14 weeks post-dose.

In August 2023, Homology terminated both its pheNIX Phase 1/2 gene therapy clinical trial evaluating HMI-102 in adults with classical PKU and its juMPStart Phase 1 gene therapy clinical trial evaluating HMI-203 in adults with Hunter Syndrome. INDs for both the pheNIX Phase 1/2 and juMPStart Phase 1 clinical trials have been withdrawn.

Earlier-Stage Product Candidates

Homology completed IND-enabling studies with HMI-202, an investigational gene therapy for the treatment of patients with MLD. Applying the learnings from these IND-enabling studies, in August 2022, Homology announced the details of HMI-204, an optimized, *in vivo*, one-time gene therapy product candidate for the treatment of MLD. Following a single I.V. administration in the MLD murine model, this optimized candidate, which uses one of Homology's proprietary AAVHSC capsids, crossed the blood-brain-barrier to the CNS and reached key peripheral organs involved in MLD. This resulted in expression of human ARSA, or hARSA, levels in multiple brain regions and cell types above the minimum level of enzyme needed to correct the MLD disease phenotype, hARSA activity levels in the brain predictive of functional assay improvements and hARSA activity in the serum. Additionally, these optimizations led to significant improvements in vector yield and superior packaging for the product candidate.

HMI-104 is a clinical development candidate for PNH from Homology's GTx-mAb platform. This platform represents an additional way that Homology could potentially leverage its AAVHSCs in an effort to deliver one-time *in vivo* gene therapy to express and secrete antibodies from the liver, which it believes may allow it to target diseases with larger patient populations. In support of this program, Homology generated and presented preclinical data targeting complement protein 5, demonstrating preclinical proof-of-concept in PNH. A single I.V. dose of an AAVHSC GTx-mAb showed expression of full-length antibodies from the liver consistent with levels associated with anti-C5 therapeutics, sustained and robust Immunoglobulin G, or IgG, expression *in vivo* in a humanized murine liver model and a murine NOD-SCID model, and *in vivo* vector-expressed C5 mAb had potent functional activity as shown by an ex vivo hemolysis assay. Additionally, Homology observed sustained expression of C5 mAb in the presence of murine and human neonatal fragment crystallizable (Fc) receptor, or FcRn. Homology has completed IND-enabling studies with HMI-104.

Oxford Biomedica (US) LLC Transaction

On March 10, 2022, Homology closed a transaction with Oxford Biomedica (US) LLC (f/k/a Oxford Biomedica Solutions LLC and Roadrunner Solutions LLC), or OXB (US) LLC, Oxford Biomedica (US), Inc., or OXB, and Oxford Biomedica plc, or OXB Parent, and collectively with OXB, Oxford, pursuant to the Equity Securities Purchase Agreement, or the Purchase Agreement, dated as of January 28, 2022, by and among

Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development and manufacturing services to biotechnology companies, which Homology refers to as the Oxford Biomedica (US) LLC Transaction, or the OXB (US) LLC Transaction. OXB (US) LLC incorporates its proven 'plug and play' process development and manufacturing platform, as well as its experienced team and high-quality GMP vector production capabilities that Homology built and operated since 2019.

Pursuant to the terms of the Purchase Agreement and a contribution agreement, or the Contribution Agreement, entered into between Homology and OXB (US) LLC prior to the closing of the OXB (US) LLC Transaction, or the Closing, Homology agreed to assign and transfer to OXB (US) LLC all of its assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy or gene editing products, but excluding certain assets related to manufacturing or testing of its proprietary AAV vectors, or collectively, the Transferred Assets, in exchange for 175,000 common equity units in OXB (US) LLC, or Units, and OXB (US) LLC assumed from Homology, and agreed to pay, perform and discharge when due, all of its duties, obligations, liabilities, interests and commitments of any kind under, arising out of or relating to the Transferred Assets.

Effective as of the Closing, Homology sold to OXB, and OXB purchased from Homology, 130,000 Units, or the Transferred Units, in exchange for $130.0 million. In connection with the Closing, OXB contributed $50.0 million in cash to OXB (US) LLC in exchange for an additional 50,000 Units. Immediately following the Closing, (i) OXB owned 180,000 Units, representing 80 percent (80%) of the fully diluted equity interests in OXB (US) LLC, and (ii) Homology owned 45,000 Units, representing 20 percent (20%) of the fully diluted equity interests in OXB (US) LLC.

Pursuant to the Amended and Restated Limited Liability Company Agreement of OXB (US) LLC, or the OXB (US) LLC Operating Agreement, which was executed in connection with the Closing, at any time following the three-year anniversary of the Closing, (i) OXB will have an option to cause Homology to sell and transfer to OXB, and (ii) Homology will have an option to cause OXB to purchase from Homology, in each case all of its equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period, subject to a maximum amount of $74.1 million. Pursuant to the terms of the OXB (US) LLC Operating Agreement, Homology is entitled to designate one director on the board of directors of OXB (US) LLC, currently Paul Alloway, Ph.D., Homology's President and Chief Operating Officer.

Concurrently with the Closing, Homology entered into certain ancillary agreements with OXB (US) LLC including a license and patent management agreement whereby OXB (US) LLC granted certain licenses to us, a supply agreement, or the Supply Agreement, for a term of three years which includes certain annual minimum purchase commitments, a lease assignment pursuant to which Homology assigned all of its right, title and interest in, to and under its facility lease to OXB (US) LLC, a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology, as well as several additional ancillary agreements.

Corporate Headquarters Lease

In November 2021, Homology entered into an amendment of its December 2017 lease agreement, or the Lease Amendment, for its corporate headquarters in Bedford, Massachusetts. The Lease Amendment increases the space under the lease by approximately 23,011 square feet, or the Expansion Premises, and extends the expiration date of the existing premises under the lease from February 2027 to June 2030. The term with respect to the Expansion Premises commenced on May 1, 2022 and continues for a period of ten years and five months. The term of the Expansion Premises and the existing premises are not coterminous. Annual base rent for the existing premise under the Lease Amendment is approximately $4.7 million beginning on March 1, 2027, and increases by three percent annually; annual base rent for the Expansion Premises is approximately $1.4 million per year and increases by three percent annually. The Lease Amendment allows for tenant improvement allowances not to exceed $6.3 million in the aggregate. Under the terms of the agreement with Oxford,

Homology's lease for its corporate headquarters, including the Expansion Premises, has been assigned to OXB (US) LLC with Homology subleasing a portion of lab and office space back from the newly created company until December 31, 2024. Homology was released from being primary obligor under such lease, effective as of October 1, 2023. See Notes 9 and 13 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding Homology's lease agreement.

License Agreements

In April 2016, Homology entered into an exclusive license agreement with City of Hope, or COH, pursuant to which COH granted Homology an exclusive, sublicensable, worldwide license, or the COH License, to certain AAV vector-related patents and know-how owned by COH to develop, manufacture, use and commercialize products and services covered by such patents and know-how in any and all fields. On August 6, 2021, Homology received notice from COH that Homology did not accomplish at least one of the partnering milestones by the applicable deadline, as set forth in the COH License. This notice does not affect its exclusive license in the field of mammalian therapeutics, including all human therapeutics, associated diagnostics, and target validation, or the Mammalian Therapeutic Field, where Homology retains exclusive rights. Instead, the notice served as written notice that the exclusive license granted pursuant to the COH License in all fields except the Mammalian Therapeutic Field converted from exclusive to non-exclusive effective as of September 20, 2021, which was forty-five days from the receipt of notice. In connection with the conversion, any royalty obligations and sublicensee fees relating to fields outside of the Mammalian Therapeutic Field shall be reduced by a certain percentage. This change to Homology's exclusive worldwide license with COH does not impact any of its therapeutic product development candidates, including HMI-102, HMI-103, HMI-104, HMI-203 and HMI-204.

Financial Overview

Since its inception in 2015 through September 30, 2023, Homology has raised approximately $721 million in aggregate net proceeds through its initial public offering, or IPO, in April 2018, follow-on public offerings of common stock in April 2019 and April 2021, proceeds from the sale of common stock under an "at-the-market" sales agreement, equity investments from pharmaceutical companies, preferred stock financings and its agreement with Oxford. Included in its net proceeds is a $130.0 million up-front cash payment from its agreement with Oxford, $50.0 million from a former collaboration partner, comprised of an up-front payment of $35.0 million and a $15.0 million equity investment, and a $60.0 million equity investment from Pfizer Inc., or Pfizer, through a private placement transaction. Should Homology resume development of one or more of its product candidates, it will require additional capital in order to advance its product candidates through clinical development and commercialization.

Homology was incorporated and commenced operations in 2015. Since its incorporation and until recently, Homology has devoted substantially all of its resources to organizing and staffing its Company, business planning, raising capital, developing its technology platform, advancing HMI-102, HMI-103 and HMI-203 through IND-enabling studies and into clinical trials, advancing HMI-202 and HMI-104 into IND-enabling studies, researching and identifying additional product candidates, developing and implementing manufacturing processes and manufacturing capabilities, building out its manufacturing and research and development space, enhancing its intellectual property portfolio and providing general and administrative support for these operations. To date, Homology has financed its operations primarily through the sale of common stock, through the sale of preferred stock, through funding from its collaboration partner and through proceeds received as a result of its transaction with OXB (US) LLC.

To date, Homology has not generated any revenue from product sales and does not expect to generate any revenue from the sale of products in the foreseeable future, if at all. Homology recognized $1.2 million in collaboration revenue for the nine months ended September 30, 2023, and $0.8 million and $2.4 million for the three and nine months ended September 30, 2022, respectively. Homology did not recognize any collaboration revenue for the three months ended September 30, 2023.

Since inception, Homology has incurred significant operating losses. Homology's net loss was $33.0 million and $96.8 million for the three and nine months ended September 30, 2023, respectively. For the three months ended September 30, 2022, its net loss was $33.7 million and for the nine months ended September 30, 2022, its net income was $29.3 million as a result of its transaction with OXB (US) LLC, as Homology recorded a gain of $131.2 million on the sale of its manufacturing business (see Note 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding the OXB (US) LLC Transaction). As of September 30, 2023 and December 31, 2022, Homology had an accumulated deficit of $526.0 million and $429.1 million, respectively.

Homology's total operating expenses were $31.0 million and $90.5 million for the three and nine months ended September 30, 2023, respectively, and $33.7 million and $101.2 million for the three and nine months ended September 30, 2022, respectively. Homology expects operating expenses to continue to decrease over the prior year as Homology recently reduced its workforce by 86% and stopped all further program development efforts. Homology expects to continue to incur costs and expenditures in connection with activities related to the Merger and Homology will continue to incur costs associated with operating as a public company. There can be no assurance, however, that Homology will be able to successfully consummate the Merger. The process of evaluating strategic transactions has been and, if the Merger is not consummated, may continue to be costly, time-consuming and complex, and Homology may incur significant costs related to these processes, such as legal, accounting and advisory fees and expenses and other related charges. A considerable portion of these costs were and will continue to be incurred regardless of whether the Merger is completed. Such expenses decrease the remaining cash available for use in its business. Failure to consummate the Merger could significantly impair Homology's ability to enter into any future strategic transactions and may significantly diminish or delay any future distributions to its stockholders.

Should Homology resume development of product candidates, its ability to generate product revenue sufficient to achieve profitability would depend heavily on the successful development and eventual commercialization of one or more product candidates. Homology's future operating requirements will depend on many factors, including:

- the costs, timing, and results of research and development efforts for any product candidates, including clinical trials;
- the costs and timing of process development scale-up activities, and the adequacy of supply of any product candidates for preclinical studies and clinical trials through CMOs, including OXB (US) LLC;
- the costs and timing of preparing, filing, and prosecuting patent applications, maintaining and enforcing its intellectual property rights and defending any intellectual property-related claims, including any claims by third parties that Homology is infringing upon their intellectual property rights;
- the effect of competitors and market developments; and
- its ability to establish and maintain strategic collaborations, licensing or other agreements and the financial terms of such agreements for its product candidates.

As of September 30, 2023, Homology had cash, cash equivalents, and short-term investments of $103.3 million. Based on its current projections, including its recent reduction in force and stopping further program development efforts, Homology believes that its existing cash, cash equivalents, and short-term investments will enable Homology to continue its operations for at least one year from the date of the filing of its Quarterly Report on Form 10-Q for the period ended September 30, 2023. However, due to the discontinuation of all of Homology's clinical trials and research activities, as well as its recent reduction in force of all but a few custodial employees, Homology's management has concluded that there is a substantial doubt regarding its ability to continue as a going concern for more than twelve months after the date the unaudited condensed consolidated financial statements included in its Quarterly Report on Form 10-Q for the period ended September 30, 2023 have been issued. See "Liquidity and Capital Resources."

Components of Homology's Results of Operations

Revenue

To date, Homology has not generated any revenue from product sales and does not expect to generate any revenue from the sale of products in the foreseeable future. Homology recorded $1.2 million and $2.4 million in collaboration revenue for the nine months ended September 30, 2023 and 2022, respectively, related to the Stock Purchase Agreement with Pfizer (see Note 12 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding revenue recognition discussions).

Operating Expenses

Homology's operating expenses since inception have consisted solely of research and development costs and general and administrative costs.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for research activities, including discovery efforts, and the development of its product candidates, and include:

- salaries, benefits and other related costs, including stock-based compensation expense, for personnel engaged in research and development functions;
- expenses incurred under agreements with third parties, including contract research organizations, or CROs, and other third parties that conduct research, preclinical activities and clinical trials on its behalf as well as CMOs, including OXB (US) LLC, that manufacture its product candidates for use in preclinical testing and clinical trials;
- costs of outside consultants, including their fees and related travel expenses;
- costs of laboratory supplies and acquiring, developing and manufacturing preclinical study and clinical trial materials; and
- allocated expenses for rent and other operating costs.

Homology expenses research and development costs as incurred.

Research and development activities have historically been central to Homology's business model. Homology expects its research and development expenses to continue to decrease significantly given the discontinuation of all of its clinical trials and research activities. Should Homology resume development of product candidates, Homology would expect research and development costs to increase significantly for the foreseeable future as the product candidate development programs progress.

Should Homology resume development of product candidates, the duration, costs and timing of development activities including clinical trials would depend on a variety of factors, including:

- the scope, rate of progress, expense and results of clinical trials and other research and development activities that it may conduct;
- uncertainties in clinical trial design and patient enrollment rates;
- the actual probability of success for its product candidates, including the safety and efficacy results, early clinical data, competition, manufacturing capability and commercial viability;
- significant and changing government regulation and regulatory guidance;
- the timing and receipt of any marketing approvals; and

- the expense of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights.

Should Homology resume development of product candidates, a change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require Homology to conduct clinical trials beyond those that Homology anticipates will be required for the completion of clinical development of a product candidate, or if Homology experiences significant delays in its clinical trials due to patient enrollment or other reasons, Homology would be required to expend significant additional financial resources and time on the completion of clinical development.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in Homology's executive, finance, human resources, legal, business development and administrative functions. General and administrative expenses also include legal fees relating to intellectual property and corporate matters; professional fees for accounting, auditing, tax and consulting services; insurance costs; travel expenses; and facility-related expenses, which include direct depreciation costs, rent expense, maintenance of facilities and other operating costs including expenses associated with being a public company.

Homology expects its general and administrative expenses to decrease in the near future due to its recent workforce reductions. Homology has incurred and expects to continue to incur significant costs, however, related to its exploration of strategic alternatives, including legal, accounting and advisory expenses and other related charges.

Other Income

Other income consists of a gain on the sale of Homology's manufacturing business and interest income earned on its cash, cash equivalents, and short-term investments. Homology's interest income has increased due to significantly higher yields on invested funds during the three and nine months ended September 30, 2023 as compared to the prior year.

Critical Accounting Policies and Use of Estimates

Homology's management's discussion and analysis of financial condition and results of operations is based on its condensed consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of its condensed consolidated financial statements and related disclosures requires Homology to make estimates, assumptions and judgments that affect the reported amount of assets, liabilities, revenue, costs and expenses, and related disclosures. Homology bases its estimates on historical experience, known trends and events and various other factors that Homology believes are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Homology evaluates its estimates and assumptions on an ongoing basis. Homology's actual results may differ from these estimates under different assumptions or conditions.

While Homology's significant accounting policies are described in more detail in the notes to its consolidated financial statements included elsewhere in this proxy statement/prospectus, Homology believes that the following accounting policies are those most critical to the judgments and estimates used in the preparation of its consolidated financial statements.

Revenue Recognition—Homology recognizes revenue in accordance with the Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 606, *Revenue from Contracts*

with Customers, or ASC 606. Accordingly, Homology recognizes revenue when it obtains control of promised goods or services, in an amount that reflects the consideration which Homology expects to receive in exchange for those goods or services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, Homology performs the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) Homology satisfies each performance obligation. Homology only applies the five-step model to contracts when it is probable that Homology will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, Homology assesses the goods or services promised within each contract and determines those that are performance obligations, and whether each promised good or service is distinct. Homology then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

As part of the accounting for these arrangements, Homology must develop assumptions that require judgment to determine the stand-alone selling price for each performance obligation identified in the contract. For example, a significant portion of revenue recognized from Homology's former collaboration with Novartis was related to research and preclinical development work performed whereby revenue was recognized as the underlying services were performed using a cost-to-cost model. Prior to the termination of the collaboration with Novartis, Homology measured the extent of progress towards completion based on the ratio of actual costs incurred to the total estimated costs expected upon satisfying the identified performance obligation.

Amounts received prior to satisfying the revenue recognition criteria are recorded as deferred revenue in Homology's consolidated balance sheets.

Accrued Research and Development Expenses—As part of the process of preparing its financial statements, Homology is required to estimate its accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with Homology personnel and vendors to identify services that have been performed on Homology's behalf and estimating the level of service performed and the associated costs incurred for the services when Homology has not yet been invoiced or otherwise notified of the actual costs. The majority of Homology's service providers invoice Homology in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advanced payments. Homology makes estimates of its accrued expenses as of each balance sheet date in its financial statements based on facts and circumstances known to Homology at that time. Examples of estimated accrued research and development expenses include fees paid to contract research organizations and other third parties in connection with performing research activities on Homology's behalf and conducting preclinical studies and clinical trials on Homology's behalf and contract manufacturing organizations, including OXB (US) LLC, in connection with producing product for Homology's clinical studies, vendors in connection with preclinical development activities and vendors related to product manufacturing and development and distribution of preclinical supplies.

Homology bases accrued expenses related to preclinical and clinical studies on estimates of the services received and efforts expended pursuant to quotes and contracts with CROs that conduct and manage preclinical studies and clinical trials and CMOs, including OXB (US) LLC, that manufacture product for research and development activities on Homology's behalf. The financial terms of these agreements are sometimes subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to vendors will exceed the level of services provided and result in a prepayment of the expense. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical milestones. In accruing fees, Homology estimates the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, Homology adjusts the accrual or amount of prepaid expense accordingly.

Although Homology does not expect its estimates to be materially different from expenses actually incurred, if estimates of the status and timing of services performed differ from the actual status and timing of services

performed, Homology may report amounts that are too high or too low in any particular period. To date, Homology has not made any material adjustments to its prior estimates of accrued research and development expenses.

Results of Operations

Comparison of Three Months Ended September 30, 2023 and 2022

The following table summarizes Homology's results of operations for the three months ended September 30, 2023 and 2022:

	Three months ended September 30,		
(in thousands)	2023	2022	Change
Collaboration revenue	$ —	$ 802	$ (802)
Operating expenses:			
Research and development	17,519	25,854	(8,335)
General and administrative	6,842	7,810	(968)
Restructuring and other charges	6,640	—	6,640
Total operating expenses	31,001	33,664	(2,663)
Loss from operations	(31,001)	(32,862)	1,861
Other income:			
Interest income	1,423	1,269	154
Total other income	1,423	1,269	154
Loss before income taxes	(29,578)	(31,593)	2,015
Benefit from income taxes	—	46	(46)
Loss from equity method investment	(3,376)	(2,179)	(1,197)
Net loss	$ (32,954)	$ (33,726)	$ 772

Collaboration Revenue

Collaboration revenue for the three months ended September 30, 2023 was $0.8 million and was due to the recognition of deferred revenue related to the Stock Purchase Agreement with Pfizer. Homology previously recognized deferred revenue from Pfizer over Pfizer's right of first refusal, or ROFR, period of 30 months during which Pfizer could have negotiated a potential collaboration on the development and commercialization of HMI-102 and HMI-103. The ROFR period expired in May 2023.

Research and Development Expenses

	Three months ended September 30,		
(in thousands)	2023	2022	Change
External development costs for clinical programs:			
HMI-102	$ 3,046	$ 3,866	$ (820)
HMI-103	7,258	5,459	1,799
HMI-203	(366)	5,984	(6,350)
Other development-stage programs' external development costs	5,221	2,498	2,723
Employee-related costs	1,193	5,684	(4,491)
Other research and development costs	1,167	2,363	(1,196)
Total research and development expenses	$ 17,519	$ 25,854	$(8,335)

Research and development expenses for the three months ended September 30, 2023 were $17.5 million, compared to $25.9 million for the three months ended September 30, 2022. The decrease of $8.3 million was

primarily associated with Homology's decision to stop further development of its programs and reduce its workforce by 86% in July 2023 in an effort to decrease its ongoing operating costs. External costs for Homology's three clinical programs for the three months ended September 30, 2023 reflect the results of reconciliations performed at its CRO and other vendors associated with its clinical trials, as well as the recognition of expense for contractual obligations owed under its Supply Agreement with OXB (US) LLC. In addition, employee-related costs decreased over the prior quarter primarily due to Homology's workforce reduction, which it instituted during the three months ended September 30, 2023.

General and Administrative Expenses

General and administrative expenses for the three months ended September 30, 2023 were $6.8 million, compared to $7.8 million for the three months ended September 30, 2022. The decrease of $1.0 million was primarily due to lower consulting, market research costs and facility-related costs.

Restructuring and Other Charges

In connection with the corporate restructuring that reduced Homology's current workforce by approximately 80 employees, or 86%, Homology recorded a restructuring charge for severance and related costs of $6.9 million during the three months ended September 30, 2023. Homology also modified certain stock options and restricted stock units granted to the terminated employees in a prior period. These equity modifications resulted in a net reduction to stock-based compensation expense of $0.3 million reflected within restructuring and other charges during the three months ended September 30, 2023. See Notes 8 and 10 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding its corporate restructuring and other charges. Homology did not record restructuring and other charges for the three months ended September 30, 2022.

Interest Income

Interest income for the three months ended September 30, 2023 was $1.4 million, compared to $1.3 million for the three months ended September 30, 2022. The increase of $0.1 million was primarily the result of interest income generated at higher yields on invested funds for the three months ended September 30, 2023, compared to the three months ended September 30, 2022.

Income Tax Benefit

Homology recorded an income tax benefit of less than $0.1 million for the three months ended September 30, 2022. Homology did not record an income tax provision (benefit) for the three months ended September 30, 2023.

Loss from Equity Method Investment

Homology records its share of gains or losses from OXB (US) LLC on a quarterly basis. For the three months ended September 30, 2023 and 2022, Homology recorded a loss from equity method investment of $3.4 million and $2.2 million, respectively, representing its share of OXB (US) LLC's net loss. See Notes 2 and 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for more information regarding the equity method of accounting.

Net Loss

Net loss for the three months ended September 30, 2023 was $33.0 million, compared to $33.7 million for the three months ended September 30, 2022. The decrease in net loss was primarily due to the decrease in operating expenses discussed above.

Comparison of Nine Months Ended September 30, 2023 and 2022

The following table summarizes Homology's results of operations for the nine months ended September 30, 2023 and 2022:

(in thousands)	Nine months ended September 30, 2023	2022	Change
Collaboration revenue	$ 1,156	$ 2,406	$ (1,250)
Operating expenses:			
Research and development	60,489	71,202	(10,713)
General and administrative	23,355	29,991	(6.636)
Restructuring and other charges	6,640	—	6,640
Total operating expenses	90,484	101,193	(1,709)
Loss from operations	(89,328)	(98,787)	9,459
Other income:			
Gain on sale of business	—	131,249	(131,249)
Interest income	4,430	1775	2,628
Total other income	4,430	133,024	(128,621)
Income (loss) before income taxes	(84,925)	34,237	(119,162)
Provision for income taxes	—	(816)	816
Loss from equity method investment	(11,917)	(4,131)	(7,786)
Net income (loss)	$ (96,842)	$ 29,290	$(126,132)

Collaboration Revenue

Collaboration revenue for the nine months ended September 30, 2023 was $1.2 million, compared to $2.4 million for the nine months ended September 30, 2022, and was due to the recognition of deferred revenue related to the Stock Purchase Agreement with Pfizer in both periods.

Research and Development Expenses

(in thousands)	Nine months ended September 30, 2023	2022	Change
External development costs for clinical programs:			
HMI-102	$ 5,822	$ 13,643	$ (7,821)
HMI-103	16,371	10,767	5,604
HMI-203	8,942	11,095	(2,153)
Other development-stage programs' external development costs	13,685	6,330	7,355
Employee-related costs	11,631	24,025	(12,394)
Other research and development costs	4,038	5,342	(1,304)
Total research and development expenses	$ 60,489	$ 71,202	$(10,713)

Research and development expenses for the nine months ended September 30, 2023 were $60.5 million, compared to $71.2 million for the nine months ended September 30, 2022. The decrease of $10.7 million was primarily due to lower employee-related costs as a result of the reduction in workforce Homology instituted during the three months ended September 30, 2023, in addition to transferring employees to OXB (US) LLC upon the sale of Homology's manufacturing business to Oxford in March 2022. In addition, external development costs related to HMI-102, including costs incurred with Homology's CRO to conduct and manage its pheNIX clinical trial, decreased as the trial was placed on clinical hold in February 2022 and enrollment was paused in August 2022. Partially offsetting these decreases were increased external development costs in the first

half of 2023 related to its development-stage programs, including higher spending on HMI-104, its GTx-mAb product candidate for PNH. In addition, external development costs for the HMI-103 clinical program increased over the nine months ended September 30, 2022.

General and Administrative Expenses

General and administrative expenses for the nine months ended September 30, 2023 were $23.4 million, compared to $30.0 million for the nine months ended September 30, 2022. The decrease of $6.6 million was primarily due to a $3.3 million decrease in consulting expenses as the prior year included a fee of $2.5 million paid to a strategic advisory firm that assisted Homology with the OXB (US) LLC Transaction. Employee-related costs decreased by $1.5 million as a result of the reduction in workforce Homology instituted in the three months ended September 30, 2023. In addition, professional fees decreased $0.8 million as Homology incurred higher legal fees in the prior year related to the OXB (US) LLC Transaction, and depreciation expense and overall facilities costs decreased $0.7 million as compared to the prior year period.

Restructuring and Other Charges

In connection with the corporate restructuring that reduced Homology's workforce by approximately 80 employees, or 86%, Homology recorded a restructuring charge for severance and related costs of $6.9 million during the nine months ended September 30, 2023. Homology also modified certain stock options and restricted stock units granted to the terminated employees in a prior period. These equity modifications resulted in a net reduction to stock-based compensation expense of $0.3 million reflected within restructuring and other charges during the nine months ended September 30, 2023. See Notes 8 and 10 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding restructuring and other charges. Homology did not record restructuring and other charges for the nine months ended September 30, 2022.

Gain on Sale of Business

Gain on sale of business for the nine months ended September 30, 2022 was $131.2 million. On March 10, 2022, Homology closed its transaction with Oxford and recorded a gain of $131.2 million on the sale of its manufacturing business. See Note 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for details surrounding the sale.

Interest Income

Interest income for the nine months ended September 30, 2023 was $4.4 million, compared to $1.8 million for the nine months ended September 30, 2022. The increase of $2.6 million was primarily the result of interest income generated at higher yields on invested funds for the nine months ended September 30, 2023 compared to the nine months ended September 30, 2022.

Provision for Income Taxes

Homology recorded an income tax provision of $0.8 million for the nine months ended September 30, 2022. The tax provision predominately resulted from the gain associated with the sale of its manufacturing business due to the transaction with Oxford. Though Homology had substantial pre-tax income for the nine months ended September 30, 2022, Homology had federal and state net operating loss carryforwards and research and development tax credits available to offset most of that taxable income for the period. Homology did not record an income tax provision (benefit) for the nine months ended September 30, 2023.

Loss from Equity Method Investment

Homology records its share of gains or losses from OXB (US) LLC on a quarterly basis. For the nine months ended September 30, 2023 and 2022, Homology recorded a loss from equity method investment of

$11.9 million and $4.1 million, respectively, representing its share of OXB (US) LLC's net loss. The loss from equity method investment for the nine months ended September 30, 2023 includes an other-than-temporary impairment charge of approximately $3.8 million Homology recorded because it was determined that the fair value of its equity method investment in OXB (US) LLC was less than its carrying value. See Notes 2 and 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for more information regarding the equity method of accounting.

Net Income (Loss)

Net loss for the nine months ended September 30, 2023 was $96.8 million, compared to net income of $29.3 million for the nine months ended September 30, 2022. Net income for the nine months ended September 30, 2022 was primarily due to a gain of $131.2 million on the sale of its manufacturing business, offset by its operating expenses of $101.2 million as described above.

Comparison of Years Ended December 31, 2022 and 2021

The following table summarizes Homology's results of operations for the years ended December 31, 2022 and 2021:

	For the Year Ended December 31,		
(in thousands)	**2022**	**2021**	**Change**
Collaboration revenue	$ 3,208	$ 33,971	$ (30,763)
Operating expenses:			
Research and development	98,351	93,085	5,266
General and administrative	38,138	36,835	1,303
Total operating expenses	136,489	129,920	6,569
Loss from operations	(133,281)	(95,949)	(37,332)
Other income:			
Gain on sale of business	131,249	—	131,249
Interest income	3,230	185	3,045
Total other income	134,479	185	134,294
Income (loss) before income taxes	1,198	(95,764)	96,962
Provision for income taxes	(715)	—	(715)
Loss from equity method investment	(5,488)	—	(5,488)
Net loss	$ (5,005)	$ (95,764)	$ 90,759

Collaboration Revenue

Collaboration revenue for the year ended December 31, 2022 was $3.2 million, compared to $34.0 million for the year ended December 31, 2021. Collaboration revenue in both periods includes the recognition of collaboration revenue related to the Stock Purchase Agreement with Pfizer. Collaboration revenue for the year ended December 31, 2021 also includes the recognition of deferred revenue and reimbursements incurred under the collaboration and license agreement with Novartis, which terminated in August 2021. As a result of the termination, all remaining deferred revenue pursuant to the collaboration and license agreement with Novartis was recognized as Homology performed the final activities under the collaboration and license agreement through the termination date.

Research and Development Expenses

(in thousands)	For the Year Ended December 31, 2022	2021	Change
External development costs for clinical programs:	$ 16,245	$ 18,501	$ (2,256)
HMI-102			
HMI-103	19,358	10,034	9,324
HMI-203	15,839	11,981	3,858
Other development-stage programs' external development costs	9,794	4,035	5,759
Employee-related costs	29,654	45,227	(15,573)
Other research and development costs	7,461	3,307	4,154
Total research and development expenses	$ 98,351	$ 93,085	$ 5,266

Research and development expenses for the year ended December 31, 2022 were $98.4 million, compared to $93.1 million for the year ended December 31, 2021. The increase of $5.3 million was primarily due to increases in direct costs of $9.3 million related to pheEDIT, Homology's Phase 1 clinical trial with HMI-103 and $3.9 million related to juMPStart, Homology's Phase 1 clinical trial with HMI-203, as Homology incurred costs to initiate sites and enroll patients in both trials. Additionally, there was a $5.8 million increase in direct research expenses related to its other development-stage programs, primarily due to higher spending on HMI-104, its GTx-mAb product candidate for PNH. Other research and development costs related to laboratory supplies and research materials for its early-stage research programs and platform-development work increased $4.1 million over the prior year. Partially offsetting these increases was a $15.6 million decrease in employee-related costs as a result of transferring employees to OXB (US) LLC upon the sale of its manufacturing business to Oxford. Homology also experienced a decrease of $2.3 million in direct research expenses for HMI-102 including costs incurred with its CRO to conduct and manage its Phase 2 pheNIX clinical trial as the trial was placed on clinical hold in February 2022 and enrollment was paused in August 2022.

General and Administrative Expenses

General and administrative expenses for the year ended December 31, 2022 were $38.1 million, compared to $36.8 million for the year ended December 31, 2021. The increase of $1.3 million was largely due to the OXB (US) LLC Transaction, as Homology had an increase in consulting fees of $2.3 million which included a fee of $2.5 million paid to a strategic advisory firm that assisted Homology with the transaction, as well as increased legal and audit fees of $1.8 million, which were primarily related to the OXB (US) LLC Transaction. In addition, insurance costs increased by $0.2 million. Partially offsetting these increases was a decrease of $1.0 million in depreciation expense as its leasehold improvements were transferred to OXB (US) LLC upon the sale of its manufacturing business in the first quarter of 2022, as well as a decrease of $0.9 million in market research expense resulting from program prioritization efforts implemented in the second half of 2022. Recruiting costs also decreased by $0.5 million as compared to the prior year.

Gain on Sale of Business

Gain on sale of business for the year ended December 31, 2022 was $131.2 million. On March 10, 2022, Homology closed its transaction with Oxford and recorded a gain of $131.2 million on the sale of its manufacturing business. See Note 6 to Homology's consolidated financial statements for the years ended December 31, 2021 and 2022 included elsewhere in this proxy statement/prospectus for details surrounding the sale.

Interest Income

Interest income for the year ended December 31, 2022 was $3.2 million, compared to $0.2 million for the year ended December 31, 2021. The increase was the result of significantly higher yields on invested funds for the year ended December 31, 2022 compared to the year ended December 31, 2021.

Provision for Income Taxes

Homology recorded an income tax provision of $0.7 million for the year ended December 31, 2022. The tax provision predominately resulted from the gain associated with the sale of its manufacturing business due to the transaction with Oxford. Though Homology had taxable income for the year ended December 31, 2022, Homology had federal and state net operating loss carryforwards and research and development tax credits available to offset most of that taxable income for the period. Homology did not record an income tax provision (benefit) for the year ended December 31, 2021.

Loss from Equity Method Investment

Homology records its share of gains or losses from OXB (US) LLC on a quarterly basis. For the year ended December 31, 2022, Homology recorded a loss from equity method investment of $5.5 million representing its share of OXB (US) LLC's net loss during the period from March 11, 2022 through December 31, 2022. See Notes 2 and 6 to Homology's consolidated financial statements for the years ended December 31, 2021 and 2022 included elsewhere in this proxy statement/prospectus for more information regarding the equity method of accounting.

Net Loss

Net loss for the year ended December 31, 2022 was $5.0 million, compared to $95.8 million for the year ended December 31, 2021. The decrease in net loss was primarily due to a gain of $131.2 million on the sale of Homology's manufacturing business, offset by its operating expenses as described above.

Liquidity and Capital Resources

Since its inception, Homology has incurred significant operating losses. Homology does not have any approved products and has never generated any revenue from product sales. To date, Homology has financed its operations primarily through the sale of common stock, the sale of preferred stock, through an up-front payment and funding of research candidates from a collaboration partner and through the gross proceeds from its transaction with OXB (US) LLC. Since its inception in 2015, Homology has raised approximately $721 million in aggregate net proceeds through its IPO in April 2018, follow-on public offerings of common stock in April 2019 and April 2021, proceeds from the sale of common stock under an "at-the-market" sales agreement, equity investments from pharmaceutical companies, preferred stock financings and its agreement with Oxford. Included in its net proceeds is a $130.0 million up-front cash payment from its agreement with Oxford, $50.0 million from a former collaboration partner, comprised of an up-front payment of $35.0 million and a $15.0 million equity investment, and a $60.0 million equity investment from Pfizer through a private placement transaction.

ATM Program

On March 9, 2023, Homology filed a Registration Statement on Form S-3 (File No. 333-270414) (the "Shelf") with the SEC in relation to the registration of up to an aggregate of $250.0 million of its common stock, preferred stock, debt securities, warrants and/or units of any combination thereof for a period up to three years from the date of the filing. The Shelf became effective on March 17, 2023. Homology also simultaneously entered into a sales agreement with TD Cowen, as sales agent, providing for the offering, issuance and sale by Homology of up to an aggregate of $75.0 million of its common stock from time to time in "at-the-market"

offerings under the Shelf (the "ATM"). Homology did not sell any shares of common stock under the ATM during the nine months ended September 30, 2023. As of September 30, 2023, there remained $75.0 million of common stock available for sale under the ATM.

Oxford Biomedica (US) LLC Transaction

On March 10, 2022, Homology closed a transaction with Oxford pursuant to the Purchase Agreement, dated as of January 28, 2022, by and among Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development services and manufacturing services to pharmaceutical and biotechnology companies. Pursuant to the terms of the agreements entered into as part of the OXB (US) LLC Transaction, Homology assigned and transferred to OXB (US) LLC all of its assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy and gene editing products. Oxford paid Homology $130.0 million upfront and invested $50.0 million to fund the new company in exchange for an 80 percent ownership stake, while Homology owns 20 percent of the new company. Also, at any time following the three-year anniversary of the closing of the transaction, Oxford has an option to cause Homology to sell and transfer to Oxford and Homology has an option to cause Oxford to purchase from Homology, in each case all of its equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period, subject to a maximum amount of $74.1 million. See Note 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding the Oxford transaction.

Strategic Collaborations and Investments

On November 9, 2020, Homology entered into the Stock Purchase Agreement with Pfizer, pursuant to which Pfizer purchased 5,000,000 shares of Homology's common stock through a private placement transaction at a purchase price of $12.00 per share, for an aggregate purchase price of $60.0 million. Under the Stock Purchase Agreement, Pfizer was granted an exclusive right of first refusal, or ROFR, for a 30-month period to negotiate a potential collaboration on the development and commercialization of HMI-102 and HMI-103. The 30-month ROFR period expired on May 9, 2023. In addition to the ROFR, the Stock Purchase Agreement provided for an information sharing committee comprised of representatives of each company which served as a forum for sharing information regarding the development of HMI-102 and HMI-103 during the ROFR period. Additionally, Pfizer designated a member to join Homology's Scientific Advisory Board to participate in matters related to the development of these programs.

Strategic Review and Reduction in Force

On July 25, 2023, Homology's board of directors approved a process to explore, review and evaluate a range of potential strategic options available to Homology, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Therefore, based on cost-reduction initiatives intended to reduce Homology's ongoing operating expenses and maximize shareholder value as Homology evaluated strategic options, its board of directors also approved a reduction in Homology's current workforce by approximately 80 employees. In connection with this corporate restructuring, Homology recorded a restructuring charge for severance and related costs of $6.9 million in its condensed consolidated statements of operations during the three months ended September 30, 2023.

Cash Flows

Homology's cash, cash equivalents, and short-term investments totaled $103.3 million and $175.0 million as of September 30, 2023 and December 31, 2022, respectively. Homology had no indebtedness as of September 30, 2023 and December 31, 2022.

The following table summarizes Homology's sources and uses of cash for each of the periods presented:

(in thousands)	Nine months ended September 30, 2023	2022
Net cash used in operating activities	$ (74,655)	$ (86,462)
Net cash provided by investing activities	69,610	18,725
Net cash provided by financing activities	170	564
Net change in cash, cash equivalents and restricted cash	$ (4,875)	$ (67,173)

Operating Activities

Net cash used in operating activities for the nine months ended September 30, 2023 was $74.7 million, which was primarily utilized for the funding of Homology's operating expenses of $90.5 million, as Homology incurred expenses associated with research and development activities including clinical trial activities associated with its HMI-103 and HMI-203 programs, preclinical development activities including IND-enabling studies for HMI-104 and research activities on other applications for its technology, adjusted for non-cash expenses of $17.9 million. Non-cash expenses includes an $11.9 million loss from its equity method investment in OXB (US) LLC, $6.5 million of stock-based compensation expense and noncash lease expense of $1.1 million, partially offset by accretion on short-term investments of $2.3 million. The change in operating assets and liabilities of $4.3 million was driven by increased accounts payable of $6.7 million and decreased prepaid expenses and other current assets of $3.0 million, partially offset by decreased accrued expenses and other liabilities of $3.0 million and decreased deferred revenue of $1.2 million.

Net cash used in operating activities for the nine months ended September 30, 2022 was $86.5 million, primarily due to its net income of $2.3 million offset by the $131.2 million gain recognized on the sale of its manufacturing business to Oxford. Further offsetting its net income was an increase in prepaid expenses and other current assets of $5.3 million primarily due to the receivable from OXB (US) LLC, as well as a decrease in deferred revenue of $2.4 million. Conversely, Homology had net non-cash expenses of $15.2 million, which included $10.0 million of stock-based compensation expense and a $4.1 million loss from its equity method investment in OXB (US) LLC, $5.7 million of increased accrued expenses and other liabilities and $2.7 million of increased accounts payable, all of which reduced its net cash used in operating activities for the nine months ended September 30, 2022.

Investing Activities

Net cash provided by investing activities for the nine months ended September 30, 2023 was $69.6 million, primarily due to proceeds from maturities of short-term investments of $142.7 million, offset by purchases of short-term investments of $73.2 million.

Net cash provided by investing activities for the nine months ended September 30, 2022 was $18.7 million, primarily due to $130.0 million of cash received from Oxford pursuant to the OXB (US) LLC Transaction (see Note 5 to Homology's condensed consolidated financial statements included elsewhere in this proxy statement/prospectus). Homology also had proceeds from maturities of short-term investments of $157.5 million, offset by purchases of short-term investments of $49.2 million and purchases of property and equipment of $1.3 million.

Financing Activities

Net cash provided by financing activities for the nine months ended September 30, 2023 was $0.2 million, due to proceeds from the issuance of common stock pursuant to Homology's employee stock purchase plan.

Net cash provided by financing activities for the nine months ended September 30, 2022 was $0.6 million, due to proceeds from the issuance of common stock pursuant to Homology's employee stock purchase plan.

Homology's cash, cash equivalents and short-term investments totaled $175.0 million and $155.9 million as of December 31, 2022 and 2021, respectively. Homology had no indebtedness as of December 31, 2022 and 2021.

The following table summarizes Homology's sources and uses of cash for each of the periods presented:

	For the Year Ended December 31,	
(in thousands)	2022	2021
Net cash used in operating activities	$ (113,661)	$ (109,751)
Net cash provided by (used in) investing activities	36,716	(50,788)
Net cash provided by financing activities	596	52,169
Net change in cash, cash equivalents and restricted cash	$ (76,349)	$ (108,370)

Though Homology's net change in cash, cash equivalents and restricted cash for the year ended December 31, 2022 was a decrease of $76.3 million, Homology had a net increase of $93.5 million in short-term investments primarily due to the $130.0 million up-front payment Homology received from Oxford in connection with the OXB (US) LLC Transaction.

Operating Activities

Net cash used in operating activities for the year ended December 31, 2022 was $113.7 million, which was primarily utilized for the funding of Homology's operating expenses of $136.5 million, as Homology incurred expenses associated with research and development activities including clinical trial activities associated with its HMI-103, HMI-203 and HMI-102 programs, preclinical development activities including IND-enabling studies for HMI-104 and research activities on other applications for its technology, adjusted for non-cash expenses of $112.0 million, which includes the one-time gain of $131.2 million recognized on the sale of its manufacturing business to Oxford, and a change in operating assets and liabilities of $3.4 million. The change in operating assets and liabilities was driven by increased accrued expenses and other liabilities of $7.4 million largely due to materials produced for Homology by OXB (US) LLC and accrued for at year-end, offset by decreased deferred revenue of $3.2 million and decreased accounts payable of $1.0 million.

Net cash used in operating activities for the year ended December 31, 2021 was $109.8 million, driven primarily by its net loss of $95.8 million as Homology incurred expenses associated with research and development activities on HMI-102, HMI-103 and HMI-203, including the Phase 2 pheNIX trial for its HMI-102 program, and research activities on other applications for its technology, a decrease in deferred revenue of $33.4 million, and a decrease in operating lease liabilities of $2.4 million. These items were partially offset by net non-cash expenses of $27.8 million, which includes $17.2 million of stock-based compensation expense and $8.4 million of depreciation expense.

Investing Activities

Net cash provided by investing activities for the year ended December 31, 2022 was $36.7 million, primarily due to $130.0 million of cash received from Oxford pursuant to the OXB (US) LLC Transaction (see Note 6 to Homology's consolidated financial statements for the years ended December 31, 2021 and 2022 included elsewhere in this proxy statement/prospectus). Homology also had proceeds from maturities of short-term investments of $65.5 million. These two items were offset by purchases of short-term investments of $157.5 million and purchases of property and equipment of $1.3 million.

Net cash used in investing activities for the year ended December 31, 2021 was $50.8 million, attributable to maturities of short-term investments of $49.0 million, offset by purchases of short-term investments of $97.4 million and purchases of property and equipment of $2.4 million.

Financing Activities

Net cash provided by financing activities for the year ended December 31, 2022 was $0.6 million, due to proceeds from the issuance of common stock pursuant to Homology's employee stock purchase plan.

Net cash provided by financing activities for the year ended December 31, 2021 was $52.2 million, primarily due to $49.7 million of net proceeds from the issuance of common stock in follow-on public offerings and $1.5 million of net proceeds from the issuance of common stock pursuant to ATM financing.

Funding Requirements

Operating expenses decreased during the nine months ended September 30, 2023 as compared to the nine months ended September 30, 2022. Homology currently expects its expenses to continue to decrease in 2023 compared to 2022 due to its decision to stop all further development of its product candidates and the recent implementation of an 86% workforce reduction. Homology will continue to incur costs associated with operating as a public company. If Homology decides to resume the development of its product candidates, however, Homology expect its expenses to increase in order to advance preclinical activities and clinical trials for product candidates in development. After a comprehensive review of strategic alternatives, on November 16, 2023, Homology entered into the Merger Agreement. Following the Merger, if successfully consummated, Homology does not anticipate any further development of its product candidates or programs.

As of September 30, 2023, Homology had cash, cash equivalents, and short-term investments of $103.3 million. Based on Homology's current projections, Homology believes that its existing cash, cash equivalents, and short-term investments as of September 30, 2023 will enable Homology to continue its operations for at least one year from the date of its Quarterly Report on Form 10-Q for the period ended September 30, 2023. However, in light of the discontinuation of all of Homology's clinical trials and research activities, as well as its recent reduction in force of all but a few custodial employees, Homology has concluded that there is a substantial doubt regarding its ability to continue as a going concern for more than twelve months after the date the unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus have been issued.

Homology has based these estimates on assumptions that may prove to be imprecise, and Homology may use its available capital resources sooner than it currently expects. In addition, its resource requirements could materially change if it is unable to consummate the Merger. As a result, Homology is unable to estimate the exact amount of its working capital requirements. Should Homology resume development of product candidates in the future, its future funding requirements would depend on and could increase significantly as a result of many factors, including:

- the costs, timing, and results of research and development efforts, including clinical trials;
- the costs and timing of process development scale-up activities, and the adequacy of supply of product candidates for preclinical studies and clinical trials through CMOs, including OXB (US) LLC;
- the costs and timing of preparing, filing, and prosecuting patent applications, maintaining and enforcing its intellectual property rights and defending any intellectual property-related claims, including any claims by third parties that Homology is infringing upon their intellectual property rights;
- the effect of competitors and market developments; and
- its ability to establish and maintain strategic collaborations, licensing or other agreements and the financial terms of such agreements for its product candidates.

Homology maintains the majority of its cash and cash equivalents in accounts with major highly rated multi-national and local financial institutions, and its deposits at these institutions exceed insured limits. Market

conditions can impact the viability of these institutions, and any inability to access or delay in accessing these funds could adversely affect its business and financial position. In the event of failure of any of the financial institutions where Homology maintains its cash and cash equivalents, there can be no assurance that Homology will be able to access uninsured funds in a timely manner or at all.

Further, the global economy, including credit and financial markets, has recently experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, rising interest and inflation rates, declines in consumer confidence, declines in economic growth, increases in unemployment rates, uncertainty about economic stability, and COVID-19. All of these factors could impact its liquidity and future funding requirements, including but not limited to its ability to raise additional capital when needed on acceptable terms, if at all. The duration of this economic slowdown is uncertain and the impact on its business is difficult to predict. See "*Risk Factors—Unstable global political or economic conditions may have serious adverse consequences on Homology's business, financial condition and share price*" included elsewhere in this proxy statement/prospectus.

Until such time, if ever, that Homology can generate product revenue, and subject to its pursuit of a potential strategic transaction and the consummation of such potential transaction, Homology expects to finance its cash needs through a combination of equity offerings, debt financings, collaboration agreements, other third-party funding, strategic alliances, licensing arrangements and marketing and distribution arrangements. To the extent that Homology raises additional capital through the sale of equity or convertible debt securities, the ownership interests of its stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of its stockholders as common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting its ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If Homology raises additional funds through other third-party funding, collaboration agreements, strategic alliances, licensing arrangements or marketing and distribution arrangements, Homology may have to relinquish valuable rights to its technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to Homology. If Homology resumes the development of product candidates and is unable to raise additional funds through equity or debt financings when needed, Homology may be required to delay, limit, reduce or terminate its product development or future commercialization efforts, or grant rights to develop and market products or product candidates that Homology would otherwise prefer to develop and market itself.

Contractual Obligations

As of September 30, 2023, Homology had non-cancelable operating leases with total future minimum lease payments of $41.5 million, of which $1.1 million will be payable in 2023. These minimum lease payments exclude Homology's share of the facility operating expenses, real-estate taxes and other costs that are reimbursable to the landlord under the leases. These payments are for operating leases for Homology's corporate headquarters in Bedford, Massachusetts, comprised of office, manufacturing and lab space that expire in June 2030 and May 2032. Under the terms of the OXB (US) LLC Transaction, Homology's leases for this space has been assigned to OXB (US) LLC effective March 10, 2022, with Homology subleasing a portion of lab and office space back from OXB (US) LLC. This assignment significantly decreases Homology's contractual obligations under Homology's operating leases to approximately $9.0 million through 2024 when the sublease expires.

On September 25, 2023, Homology signed and executed a release letter with its lessor related to its headquarters in Bedford, MA. The lessor agreed to release Homology of all obligations under the lease effective October 1, 2023 in exchange for a $0.1 million cash payment. On October 1, 2023, Homology wrote off the right-of-use asset and operating lease liability and record the difference as a gain within other income on the condensed consolidated statements of operations. See Note 14 to Homology's unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus for additional information regarding its lease agreement.

Homology's agreements with certain institutions to license intellectual property include potential milestone and success fees, sublicense fees, royalty fees, licensing maintenance fees, and reimbursement of patent maintenance costs that Homology may be required to pay. Homology's agreements to license intellectual property include potential milestone payments that are dependent upon the development of products using the intellectual property licensed under the agreements and contingent upon the achievement of development or regulatory approval milestones, as well as commercial milestones. These potential obligations are contingent upon the occurrence of future events and the timing and likelihood of such potential obligations are not known with certainty. For further information regarding these agreements, please see "*Strategic Collaborations*."

Homology enters into contracts in the normal course of business with CROs and CMOs for clinical trials, preclinical research studies and testing, manufacturing and other services and products for operating purposes. These contracts generally do not contain any minimum purchase commitments and are cancelable by Homology upon prior notice of 30 days and, as a result, are not included in the table of contractual obligations above. Pursuant to the terms of the Supply Agreement with OXB (US) LLC entered into in March 2022, Homology agreed to purchase from OXB (US) LLC at least 50% of its clinical supply requirements of AAV-based products during the initial term of the Supply Agreement. Homology was committed to purchase a minimum number of batches of drug substance and drug product, as well as process development services, totaling approximately $29.7 million in 2023 under the Supply Agreement. Homology does not have any commitments to purchase products or services from OXB in 2024. The Supply Agreement provides for an initial term of three years, which period may be extended for an additional one-year term. After the initial term, Homology will have the right to terminate the Supply Agreement for convenience or other reasons specified in the Supply Agreement upon prior written notice. Either Party may terminate the Supply Agreement upon an uncured material breach by the other Party or upon the bankruptcy or insolvency of the other Party.

Quantitative and Qualitative Disclosures About Market Risk.

Homology is exposed to market risks in the ordinary course of its business. These risks primarily include interest rate sensitivities.

Interest Rate Risk

Homology's interest-earning assets consist of cash and cash equivalents and short-term investments of $103.3 million, or 73.8% of its total assets as of September 30, 2023, and $175.0 million, or 76.6% of its total assets as of December 31, 2022. Interest income earned on these assets was approximately $4.4 million and $1.8 million for the nine months ended September 30, 2023 and 2022, respectively. Homology's interest income is sensitive to changes in the general level of interest rates, primarily U.S. interest rates. If a 10% change in interest rates were to have immediately occurred on September 30, 2023, this change would not have had a material effect on the fair value of its investment portfolio as of that date. As of September 30, 2023, Homology's cash equivalents consisted of bank deposits and money market funds. Such interest-earning instruments carry a degree of interest rate risk; however, historical fluctuations in interest income have not been significant for Homology. Homology had no debt outstanding as of September 30, 2023 and December 31, 2022.

Inflation Rate Risk

As of September 30, 2023, Homology does not believe that inflation has had a material effect on its business, financial condition or results of operations. To the extent inflation results in rising interest rates and has other adverse effects on the market, it may adversely affect Homology's business, financial condition and results of operations.

Q32 MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of Q32's financial condition and results of operations should be read together with Q32's consolidated financial statements and the related notes appearing elsewhere in this proxy statement/prospectus. This discussion and other parts of this proxy statement/prospectus contain forward-looking statements that involve risks and uncertainties, such as statements regarding Q32's plans, objectives, expectations, intentions and projections. Q32's actual results could differ materially from those described in or implied by these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the "Risk Factors" section of this proxy statement/prospectus.

Overview

Q32 Bio Inc., or Q32, is a clinical stage biotechnology company focused on developing novel biologics to effectively and safely restore healthy immune balance in patients with autoimmune and inflammatory diseases driven by pathological immune dysfunction. To achieve this goal of restoring homeostasis to a dysregulated immune system, Q32 is advancing antibody-based therapeutic candidates designed to target two central pathways of adaptive and innate immunity. The adaptive immune system is largely composed of T- and B-cell mediated cellular and antibody responses: while the innate immune system is a first line of defense employing leukocytes such as monocytes, macrophages, neutrophils, dendritic cells and natural killer cells that are responsible for clearing pathogens and cellular debris, and modulating T- and B-cell function. Q32 believes that targeting these key pathways of immune dysregulation in autoimmune and inflammatory diseases will deliver therapeutics for indications with clear unmet medical need in the near term, while enabling Q32 to build a broad and diverse pipeline in the long term. Q32 has multiple product candidates across a variety of these diseases with clinical readouts for Q32's two lead programs expected in 2024 and 2025.

Bempikibart (ADX-914), Q32's most advanced product candidate, is a fully human anti-interleukin-7 receptor alpha, or IL-7Rα, antagonist monoclonal antibody designed to re-regulate adaptive immune function by blocking signaling mediated by interleukin-7, or IL-7, and thymic stromal lymphopoietin, or TSLP. Bempikibart is being studied in two double-blind, placebo-controlled Phase 2 clinical trials designed to establish proof of clinical concept and evaluate Q32's selected Phase 2 dose. One trial is evaluating the use of bempikibart for the treatment of atopic dermatitis, or AD, and one is evaluating bempikibart for the treatment of alopecia areata, or AA. Enrollment in both clinical trials remains ongoing and Q32 remains on track to report topline data from both Phase 2 clinical trials in the second half of 2024.

ADX-097, the lead product candidate from Q32's complement inhibitor platform, is a humanized anti-C3d monoclonal antibody, or mAb, fusion protein. ADX-097 is designed to restore complement regulation—an integral part of the innate immune system—through a tissue targeted mechanism. ADX-097 is designed to inhibit alternative pathway complement activation locally in diseased tissues where complement-mediated pathology is actively manifest. Q32 believes ADX-097 has the potential to drive improved clinical activity and address the limitations of the currently available systemic approaches to complement inhibition, including infection risk and the need for high drug doses and frequent administration, to achieve therapeutic levels of inhibition. Q32 is developing ADX-097 for the treatment of renal and other complement-mediated diseases of high unmet need, including lupus nephritis, or LN, immunoglobulin A, or IgA, nephropathy, or IgAN, complement component 3 glomerulopathy, or C3G, and anti-neutrophil cytoplasmic antibody, or ANCA-associated vasculitis, or AAV. Q32 has completed a Phase 1 clinical trial of ADX-097 in healthy volunteers. Q32 expects to initiate an open-label Phase 2 renal basket program in the first half of 2024, with initial data expected by year-end 2024, and initiate a Phase 2 clinical trial in AAV, with topline data from both the renal basket and AAV trials anticipated in the second half of 2025.

In addition to bempikibart and ADX-097, Q32 is also engaged in additional pipeline efforts to expand therapeutic opportunities within complement mediated diseases.

Recent Developments

Rights to Bempikibart

From August 2022 until November 2023, Q32 was a party to the Collaboration and Option Agreement, or the Horizon Collaboration Agreement, and the Asset Purchase Agreement, or the Purchase Agreement, and together with the Horizon Collaboration Agreement, the Horizon Agreements, each between Q32 and Horizon Therapeutics Ireland DAC, or Horizon, pursuant to which Q32 received $55.0 million in initial consideration and staged development funding for the completion of the two ongoing Phase 2 trials for bempikibart, and Horizon had an option to acquire the bempikibart program at a prespecified price, subject to certain adjustments.

In October 2023, Amgen, Inc., or Amgen, completed the acquisition of Horizon Therapeutics public limited company, or Horizon plc. Following its acquisition of Horizon plc, Q32 agreed with Amgen to mutually terminate the Horizon Agreements and on November 2023, Q32 and Horizon entered into a termination agreement, or the Horizon Termination Agreement, pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, Q32 retained the initial consideration and all development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to bempikibart. In consideration for the Horizon Termination Agreement, Q32 agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart.

Proposed Merger and Pre-Closing Financing

On November 16, 2023, Q32 entered into an Agreement and Plan of Merger and Reorganization, or the Merger Agreement, with Homology Medicines, Inc, or Homology, and Kenobi Merger Sub, Inc., a wholly owned subsidiary of Homology, or Merger Sub. Pursuant to the Merger Agreement and subject to the satisfaction or waiver of the conditions therein, Merger Sub will merge with and into Q32, with Q32 continuing as the surviving company and as a wholly owned subsidiary of Homology, or the Merger. If the Merger is completed, the business of Q32 will continue as the business of the combined company. The Merger is intended to qualify for federal income tax purposes as a tax-free reorganization under the provisions of Section 368(a) of the Internal Revenue Code of 1986, as amended. After completion of the Merger, Homology will be renamed "Q32 Bio Inc." and the business of Q32 will continue as the business of the combined company.

The Merger is expected to close in the first quarter of 2024 and is subject to approval by the stockholders of Q32 and Homology as well as other customary closing conditions, including the effectiveness of a registration statement filed with the SEC in connection with the transaction. If Homology is unable to satisfy certain closing conditions or if other mutual closing conditions are not satisfied, Q32 will not be obligated to complete the Merger.

Subject to the terms and conditions of the Merger Agreement, at the effective time of the Merger, or the Effective Time, each then outstanding share of Q32's common stock (including shares of common stock issued upon conversion of Q32's preferred stock, shares of Q32's common stock issued upon conversion of Q32's convertible notes and shares of Q32's common stock issued in the Q32 Pre-Closing Financing defined below) will be converted into the right to receive a number of shares of Homology's common stock calculated in accordance with the Merger Agreement, or the exchange ratio.

In connection with the Merger Agreement, certain third parties have entered into a subscription agreement with Q32 to purchase shares of Q32's common stock for an aggregate purchase price of approximately $42.0 million, or the Q32 Pre-Closing Financing. The Q32 Pre-Closing Financing is contingent on and will occur prior to the closing of the Merger, subject to customary closing conditions. Shares of Q32's common stock issued pursuant to the Q32 Pre-Closing Financing will be converted into shares of Homology common stock in accordance with the exchange ratio at the Effective Time.

Each share of Homology common stock that is issued and outstanding at the Effective Time will remain issued and outstanding and such shares, subject to the Reverse Stock Split, will be unaffected by the Merger.

At the Effective Time, each person who as of immediately prior to the Effective Time was a stockholder of record of Homology or had the right to receive Homology's common stock will be entitled to receive a contractual contingent value right, or CVR, issued by Homology subject to and in accordance with the terms and conditions of a Contingent Value Rights Agreement between Homology and the rights agent, or the CVR Agreement, representing the contractual right to receive cash payments from the combined company upon the receipt of certain proceeds from a disposition of Homology's pre-merger assets, calculated in accordance with the CVR Agreement.

The Merger is expected to be treated as a reverse recapitalization in accordance with accounting principles generally accepted in the United States, or GAAP, because on the effective date of the Merger, the pre-combination assets of Homology are expected to be primarily cash and cash equivalents, short-term investments, and other non-operating assets. Q32 concluded that any in-process research and development assets potentially remaining as of the combination would be de minimis when compared to the cash, cash equivalents, short-term investments obtained through the Merger.

The combined company currently expects to use the approximately $115.0 million in cash, cash equivalents and marketable securities, which includes the approximately $42.0 million anticipated from the Pre-Closing Financing, immediately after completion of the Merger and after deducting estimated transaction expenses as follows:

- approximately $27.6 million for continued clinical development of bempikibart including approximately $19.2 million in remaining clinical development expenses to fund the program through Phase 2 completion of its ongoing clinical trials and $8.4 million in CMC costs to support advancing the program through its ongoing clinical trials and to enable of advancing clinical development beyond the current Phase 2 trials;
- approximately $19.4 million for continued development of ADX-097 including approximately $12.2 million to support its planned Phase 2 clinical trials, $3.5 million in CMC related costs to support the ongoing development and $3.7 million in research and other non-clinical ADX-097 related activities;
- approximately $2.0 million for discovery and other platform-related activities; and
- the remainder for other general corporate purposes.

The specific allocation of the expected cash, cash equivalents and marketable securities immediately after completion of the Merger towards specific programs will depend on, among other things, results from the combined company's research and development efforts for each program and the timing and success of its clinical trials. Based on the combined company's current planned use of the cash, cash equivalents and marketable securities immediately after completion of the Merger and after deducting estimated transaction expenses, such funds are estimated to be sufficient to enable the combined company to fund its operating expenses and capital expenditure requirements to mid-2026. This estimate is based on assumptions that may prove to be wrong, and the combined company could use its expected capital resources sooner than currently anticipated.

The combined company does not expect the proceeds from the completion of the Merger, including the approximately $42 million anticipated from the Pre-Closing Financing, and Q32's existing cash, cash equivalents, and marketable securities, will be sufficient for it to advance any of its programs through regulatory approval, and the combined company will need to raise additional capital to complete the development and potential commercialization of any of its programs. The combined company may also use a portion of its cash, cash equivalents, and marketable securities, to acquire, in-license or invest in products, technologies or businesses that are complementary to its business. The amounts and timing of actual expenditures will depend on numerous factors, including the progress of development efforts, operating costs and other factors described under "Risk Factors" in this proxy statements/prospectus.

The expected use of proceeds represents current intentions based upon present plans and business condition. As of the date of this proxy statement/prospectus, the combined company cannot predict with complete certainty all of the particular uses for the expected cash that will be available upon the closing of the Merger or the actual amounts that it will spend on the uses set forth above.

Financial Operations Overview

Revenue

Since its inception, Q32 has not generated any revenue from product sales, and management does not expect Q32 to generate any revenue from the sale of products in the foreseeable future.

Q32 entered into the Horizon Agreements on August 12, 2022. Per the terms of the Horizon Collaboration Agreement, Q32 received a total of $55.0 million upon initiation of certain development activities associated with the planned clinical trials and related activities. Prior to its termination, the Purchase Agreement also provided Horizon the option to purchase bempikibart, which would have triggered a prespecified payment to Q32, if exercised. Q32 was also entitled to receive from Horizon additional payments based on the achievement of future development and regulatory milestones as well as royalty payments on annual net sales.

Q32 concluded that the arrangement is partially within the scope of Topic 606. Specifically, Q32 concluded that the research services required to be performed as part of the Horizon Collaboration Agreement represent an output of Q32's ordinary activities, and this represents a contract with a customer. Q32 concluded that the potential sale of bempikibart is not an output of Q32's ordinary activities and therefore this component of the Horizon Agreements is considered to be a sale of an asset and not accounted for under Topic 606.

There are two performance obligations related to the development activities of bempikibart, one of each of the specified clinical trials in AD and AA, with each composing the services related to the clinical trial and other related development activity. Q32 also identified a material right related to the option for Horizon to purchase bempikibart. The material right was considered a separate performance obligation pursuant to the provisions of Topic 606. Q32 determined the transaction price to be $55.0 million which it allocated to the three performance obligations based on the estimated stand-alone selling price of each performance obligation. Q32 concluded that the consideration allocated to the research service performance obligations should be recognized over time as Horizon receives the benefit of the research activities as the activities are performed. Q32 determined that the most appropriate method to track progress towards completion of these two performance obligations is an input method that is based on costs incurred. Any changes to these estimates will be recognized in the period in which they change as a cumulative catch-up. The consideration allocated to the material right will be included in the arrangement consideration upon exercise of the option or recognized upon expiration of the option.

Revenue recognition will vary period over period based on the ongoing research performed on behalf of Horizon. Q32 recognized $8.0 million of collaboration arrangement revenue for the nine months ended September 30, 2023. As of September 30, 2023, approximately $40.3 million remained in deferred collaboration revenue, of which $24.8 million was included in deferred revenue, current portion and $15.5 million was included in deferred revenue, net of current portion on the consolidated balance sheets, based on anticipating timing of recognition of the amounts.

On November 10, 2023, Q32 entered into a termination agreement with Horizon terminating the Horizon Agreements, as described under "— *Recent Developments*" above.

Operating Expenses

Research and Development

Research and development expenses account for a significant portion of Q32's operating expenses and consist primarily of external and internal expenses incurred in connection with the discovery and development of its product candidates. External expenses include:

- expenses incurred in connection with Q32's research and development activities, including costs related to agreements with third parties such as consultants, contractors and clinical research organizations, or CROs;
- costs related to contract development and manufacturing organizations, or CDMOs, that are primarily engaged to provide drug substance and product for Q32's preclinical studies, clinical trials and research and development programs, as well as investigative sites and consultants that conduct Q32's clinical trials, preclinical studies and other scientific development services;
- costs related to compliance with quality and regulatory requirements;
- employee-related expenses, including salaries, benefits, and stock-based compensation expense, for personnel engaged in research and development functions; and
- facilities-related expenses, depreciation, supplies, travel expenses and other allocated expenses.

Q32 expenses research and development costs as incurred. Costs are recognized based on an evaluation of the progress to completion of specific tasks using information provided to Q32 by its service providers or its estimate of the level of service that has been performed at each reporting date. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and may be reflected in Q32's consolidated financial statements as prepaid or accrued expenses. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses and expensed as the related goods are delivered or the services are performed or when it is no longer expected that the goods will be delivered or the services rendered.

Q32 does not allocate direct external research and development costs to specific programs or product candidates until there is an internally designated development candidate. Q32 typically uses its employee and infrastructure resources across its product candidates and development programs. Q32 does not allocate personnel costs or other internal costs to research and development programs and product candidates.

Q32 expects that future changes to its research and development expenses will depend significantly on the success of its clinical data. Q32 expects that research and development expenses will increase substantially as Q32 continues to advance its programs into and through clinical development. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. At this time, Q32 cannot accurately estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of any product candidates. A change in the outcome of any number of variables with respect to product candidates Q32 may develop could significantly change the costs and timing associated with the development of that product candidate. Q32 may never succeed in obtaining regulatory approval for any product candidates it may develop. The successful development of any product candidate is highly uncertain. This is due to the numerous risks and uncertainties associated with product development, including the following:

- the timing and progress of preclinical and clinical development activities;
- the number and scope of preclinical and clinical programs Q32 decides to pursue;
- the ability to raise additional funds necessary to complete clinical development of and commercialize of Q32's product candidates;

- the successful initiation, enrollment and completion of clinical trials with safety, tolerability and efficacy profiles that are satisfactory to the FDA or any comparable foreign regulatory authority;
- the receipt and related terms of regulatory approvals from applicable regulatory authorities for any product candidates;
- the availability of raw materials for use in production of Q32's product candidates;
- establishing agreements with third-party manufacturers for supply of product candidate components for Q32's clinical trials;
- Q32's ability to maintain its current research and development programs and to establish new programs;
- significant and changing government regulations;
- Q32's ability to obtain and maintain patents, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- Q32's ability to protect its other rights in its intellectual property portfolio;
- commercializing product candidates, if and when approved, whether alone or in collaboration with others; and
- obtaining and maintaining third-party insurance coverage and adequate reimbursement for any approved products.

General and Administrative Expenses

General and administrative expenses primarily consist of salaries, bonuses, related benefits, and stock-based compensation expense for personnel in executive, finance, and administrative functions; professional fees for corporate legal and patent matters, consulting, accounting, and audit services; and travel expenses, insurance, technology costs and other allocated expenses. General and administrative expenses also include corporate facility costs, including rent, utilities, depreciation, and maintenance, not otherwise included in research and development expense. Q32 recognizes general and administrative expenses in the periods in which they are incurred. General and administrative expenses are expected to increase as a public company.

Change in Fair Value of Convertible Notes

During 2022, Q32 recognized a liability as a result of the issuance of convertible promissory notes, or the Convertible Notes. Q32 accounts for all Convertible Notes issued under the fair value option election of ASC 825, *Financial Instruments* (ASC 825). The financial instrument is initially measured at its issue-date estimated fair value and then subsequently remeasured at estimated fair value on a recurring basis at each reporting period date. The estimated fair value adjustment is recognized within other income (expense) in the accompanying consolidated statements of operations and the portion of the fair value adjustment attributed to a change in the instrument-specific credit risk is recognized as a component of other comprehensive loss, if any.

The change in fair value of the Convertible Notes is expected to vary period over period, based on changes in the estimated fair value of the equity into which the Convertible Notes will be issued, the pending Merger with Homology, or other future financing, and other factors.

Other income (expense), net

Other income (expense), net consists of interest income primarily earned on money market fund accounts and other short-term investments and interest expense related to Q32's debt obligations.

Results of Operations

Comparison of the Nine Months Ended September 30, 2023 and 2022

The following table summarizes Q32's results of operations for the nine months ended September 30, 2023 and 2022:

	Nine Months Ended September 30,		
	2023	2022	Change
	(in thousands)		
Collaboration arrangement revenue	$ 8,011	$ 2,871	$ 5,140
Operating expenses:			
Research and development	23,390	26,624	(3,234)
General and administrative	7,067	7,561	(494)
Total operating expense	30,457	34,185	(3,728)
Loss from operations	(22,446)	(31,314)	8,868
Change in fair value of convertible notes	(4,992)	(997)	(3,995)
Other income (expense), net	827	(765)	1,592
Loss before provision for income taxes	(26,611)	(33,076)	6,465
Provision for income taxes	(65)	(45)	(20)
Net loss	$(26,676)	$(33,121)	$ 6,445

Collaboration Arrangement Revenue

Q32 recognized $8.0 million of collaboration arrangement revenue for the nine months ended September 30, 2023 compared to $2.9 million for the nine months ended September 30, 2022. Q32 executed the Horizon Collaboration Agreement in August 2022 and began performing research services; therefore, there was increased revenue during fiscal 2023 due to the length of time services were performed.

Research and Development Expenses

The following table summarizes Q32's research and development expenses for the nine months ended September 30, 2023 and 2022:

	Nine Months Ended September 30,		
	2023	2022	Change
	(in thousands)		
Direct research and development expense by program:			
ADX-097	$ 5,784	$ 7,070	$(1,286)
Bempikibart	8,139	8,773	(634)
Discovery and other	589	909	(320)
Unallocated expenses:			
Personnel-related and consulting (including stock-based compensation)	7,149	7,950	(801)
Indirect research and development expense	1,729	1,922	(193)
Total research and development expenses	$23,390	$26,624	$(3,234)

Research and development expenses were $23.4 million for the nine months ended September 30, 2023, compared to $26.6 million for the nine months ended September 30, 2022. Expenses related to Q32's ADX-097

program decreased as the program was winding down both CMC redevelopment costs of $0.9 million and toxicology and other activities of $0.8 million in the first half of 2023 partially offset by higher clinical costs $0.4 million as the program entered Phase 1 clinical trials, which have higher ongoing costs than the previous pre-clinical studies. Expenses related to Q32's bempikibart program decreased due to decrease in toxicology cost of $1.9 million as the program substantially completed its six-month toxicology study in fiscal year 2022 and a decrease in CMC and regulatory costs of $0.3 million offset by an increase of $1.6 million in clinical spend. Q32 completed its Phase 1 clinical trial in the first half of 2022 and subsequently incurred start-up costs related to two planned Phase 2 trials, the first of which was initiated in October 2022 which expenses increased as the Phase 2 trial advanced throughout 2023.

The decrease in personnel-related and consultant costs were primarily related to a decrease in headcount and use of consultants. Personnel-related and consultant costs for the nine months ended September 30, 2023 and 2022 included stock-based compensation expense of $0.4 million and $0.3 million, respectively. The decrease in indirect research and development costs related to facility and other costs primarily associated with Q32 incurring additional facility and start-up costs associated with moving into a new office and lab facility during 2022.

General and Administrative Expenses

General and administrative expenses were $7.1 million for the nine months ended September 30, 2023, compared to $7.6 million for the nine months ended September 30, 2022. The decrease is due to lower recruiting costs and market research studies.

Change in Fair Value of Convertible Notes

Change in the fair value of the convertible notes was $5.0 million for the nine months ended September 30, 2023, compared to $1.0 million for the nine months ended September 30, 2022.

Other Income (Expense), Net

Other income (expense), net was $0.8 million for the nine months ended September 30, 2023, compared to an expense of $(0.8 million) for the nine months ended September 30, 2022. Other income (expense), net for the nine months ended September 30, 2023 is made up primarily of interest expense on Q32's venture debt of $0.4 million offset by interest income of $0.9 million. The increase in other income (expense), net is due to a higher average cash balance resulting in higher interest income for the nine months ended September 30, 2023.

Provision for income taxes

Provision for income taxes was $65 thousand for the nine months ended September 30, 2023 compared to $45 thousand for the nine months ended September 30, 2022.

Comparison of the Years Ended December 31, 2022 and 2021

The following table summarizes Q32's results of operations for the years ended December 31, 2022 and 2021:

	Year Ended December 31,		
	2022	2021	Change
	(in thousands)		
Collaboration arrangement revenue	$ 6,651	$ —	$ 6,651
Operating expenses:			
Research and development	35,814	29,929	5,885
General and administrative	10,062	6,764	3,298
Total operating expenses	45,876	36,693	9,183
Loss from operations	(39,225)	(36,693)	(2,532)
Change in fair value of convertible notes	(2,402)	—	(2,402)
Other income (expense), net	(1,120)	(324)	(796)
Loss before provision for income taxes	(42,747)	(37,017)	(5,730)
Provision for income taxes	(62)	(547)	485
Net loss	$(42,809)	$(37,564)	$(5,245)

Collaboration Arrangement Revenue

Q32 recognized $6.7 million of collaboration arrangement revenue for the year ended December 31, 2022. Q32 executed the Horizon Collaboration Agreement in August 2022 and began performing research services. As a result, there is no corresponding activity in the fiscal year ended December 31, 2021.

Research and Development Expenses

The following table summarizes Q32's research and development expenses for the years ended December 31, 2022 and 2021:

	Year Ended December 31,		
	2022	2021	Change
	(in thousands)		
Direct research and development expenses by program:			
ADX-097	$10,109	$13,332	$(3,223)
Bempikibart	11,892	7,402	4,490
Discovery and other	1,270	252	1,018
Unallocated expenses:			
Personnel-related and consulting (including stock-based compensation)	9,990	7,566	2,424
Indirect research and development expense	2,553	1,377	1,176
Total research and development expenses	$35,814	$29,929	$ 5,885

Research and development expenses were $35.8 million for the year ended December 31, 2022, compared to $29.9 million for the year ended December 31, 2021. Expenses related to Q32's ADX-097 program decreased primarily due to a decrease of $4.6 million in costs related to the completion of good manufacturing practice, or GMP, product manufacturing to support Phase 1 and Phase 2 clinical trials, a decrease of $1.5 million for non-clinical toxicology studies, and a decrease in preclinical research of $0.7 million, offset by an increase in

clinical cost of $3.6 million to initiate ADX-097 Phase 1 clinical trials. Expenses related to Q32's bempikibart program increased primarily due to an increase of $6.5 million in costs related to the initiation and advancement of a Phase 2 clinical trial for bempikibart, a $0.3 million increase in CMC activity to support ongoing product needs and an increase in non-clinical costs of $1.0 million for on-going toxicology studies, offset by a decrease in costs of $3.3 million related to the completion of the Phase 1 clinical study for bempikibart. Discovery and other costs increased by $1.0 million due to an increased focus on new discovery and pipeline activities after ADX-097 entered into clinical trials. Personnel-related and consultant expenses increased by $2.4 million due to higher research and development headcount. Indirect research and development expenses increased by $1.2 million largely associated with the costs related to Q32's move into a new facility during fiscal year 2022.

General and Administrative Expenses

General and administrative expenses were $10.1 million for the year ended December 31, 2022, compared to $6.8 million for the year ended December 31, 2021. The increase of $3.3 million in general and administrative expenses was primarily due to a $2.8 million increase in personnel-related costs related to higher general and administrative headcount and a $0.4 million increase in legal, audit and other professional services related to ongoing business activities.

Change in Fair Value of Convertible Notes

Change in the fair value of the convertible notes was $2.4 million for the year ended December 31, 2022, compared to zero for the period ended December 31, 2021. Q32 did not have any convertible notes in fiscal 2021.

Other Income (Expense), Net

Other expense, net was $1.1 million for the year ended December 31, 2022, compared to an expense, net of $0.3 million for the year ended December 31, 2021. The increase in expense, net was due to rising higher interest rates on venture debt during the year ending December 31, 2022.

Income taxes

Since inception, Q32 has not recorded any U.S. federal or state income tax benefits for the net losses it has incurred in each year or for its earned research and development tax credits, due to its uncertainty of realizing a benefit from those items. As of December 31, 2022, Q32 had no gross unrecognized tax benefits. During 2022, it amended its prior year tax filings and settled an unrecognized tax benefit recorded in the prior year and primarily driven by transfer pricing reimbursement from the U.S. to Australia including interest and penalties which explains the year-over-year decrease in income tax expenses.

Liquidity and Capital Resources

Sources of Liquidity

Since its inception, Q32 has incurred significant operating losses and negative cash flows from operations. Q32 has not yet commercialized any of its product candidates, which are in various phases of preclinical and clinical development, and it does not expect to generate revenue from sales of any products for several years, if at all. To date, Q32 has funded its operations primarily from proceeds from the sales of its convertible preferred stock, convertible notes, venture debt, and proceeds from the Horizon Collaboration Agreement. From inception through September 30, 2023, Q32 raised $111.4 million in aggregate cash proceeds, net of issuance costs, from the sales of its Series A convertible preferred stock, Series A1 convertible preferred stock and Series B convertible preferred stock and received payments of $55.0 million in connection with its collaboration agreement with Horizon. Q32 also received $30.0 million, net of issuance costs from the sales of convertible notes and $5.5 million from its venture debt. As of September 30, 2023, Q32 had cash and cash equivalents of $36.3 million.

Going Concern

Q32 has incurred significant operating losses since inception and, as of September 30, 2023, had an accumulated deficit of $160.0 million. Q32 expects negative cash flows from operations and net losses for the foreseeable future as it continues to invest significantly in research and development of its product candidates and platform. Q32 expects its existing cash and cash equivalents will not be sufficient to allow Q32 to fund its operating expenses and capital expenditures requirements through at least the next twelve months from the issuance of the consolidated financial statements included herein. Based on its recurring losses from operations incurred since inception, the expectation of continuing operating losses for the foreseeable future, and the need to raise additional capital to finance its future operations, Q32 has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that the consolidated financial statements included herein are issued.

Q32 is seeking to complete the proposed Merger with Homology as well as complete a concurrent private placement to raise additional capital. Following the completion of the proposed Merger and the Q32 Pre-Closing Financing, Q32 will also incur additional costs associated with operating as a public company. Accordingly, Q32 will require substantial additional funding to continue its operations. Upon the completion of the proposed Merger and the Q32 Pre-Closing Financing, based on its current operating plan, Q32 believes that its existing cash and cash equivalents should be sufficient to fund its operations through mid-2026. Management based its projections of operating capital requirements on Q32's current operating plan, which includes several assumptions that may prove to be incorrect, and Q32 may use all of its available capital resources sooner than management expects. Q32 expects to seek to raise additional capital through private or public equity or debt financings, loans or other capital sources, which could include collaborations, partnerships or other marketing, distribution, licensing or other strategic arrangements with third parties, or from grants, and may be required to seek additional capital sooner than planned. However, there can be no assurances that Q32 will be able to raise additional capital from these sources on favorable terms, or at all.

Cash Flows

The following table summarizes the Q32's cash flows for the periods indicated:

	Nine Months Ended September 30,		Year Ended December 31,	
	2023	2022	2022	2021
	(in thousands)		*(in thousands)*	
Net cash used in operating activities	$(7,963)	$(20,477)	$(10,957)	$(32,979)
Net cash used in investing activities	(5)	(2,485)	(2,466)	(157)
Net cash flows provided by financing activities	331	13,402	30,069	20,105
Increase/(decrease) in cash, cash equivalents and restricted cash	$(7,637)	$ (9,560)	$ 16,646	$(13,031)

Operating Activities

Q32's cash flows from operating activities are greatly influenced by Q32's use of cash for operating expenses and working capital requirements to support Q32's business. Q32 has historically experienced negative cash flows from operating activities as Q32 invested in developing clinical programs, drug discovery efforts and related infrastructure.

For the nine months ended September 30, 2023, net cash used in operating activities of $8.0 million was primarily due to a net loss of $26.7 million partially offset by a change in net operating assets and liabilities of $12.0 million and net non-cash operating expenses of $6.7 million. The change in net operating assets and liabilities was primary attributable to an increase in deferred revenue, accounts payables and other non-current

assets of $14.4 million, partially offset by a decrease in prepaid expenses and other current assets, operating lease liability and accrued expenses and other current liabilities of $2.4 million. The non-cash operating expenses consisted of a $5.0 million change in fair value of convertible notes, stock-based compensation expense of $0.9 million, non-cash lease expenses of $0.4 million, and depreciation and amortization of $0.4 million.

For the nine months ended September 30, 2022, net cash used in operating activities of $20.5 million was primarily due to a net loss of $33.1 million, partially offset by a change in net operating assets and liabilities of $9.7 million, and net non-cash operating expenses of $2.9 million. The change in net operating assets and liabilities was primary attributable to an increase in deferred revenue, accrued expenses and other current liabilities and prepaid expenses and other current assets of $11.4 million and a decrease in accounts payable, operating lease liability and other non-current assets of $1.7 million. The non-cash operating expenses consisted of a $1.0 million change in fair value of convertible notes, stock-based compensation expense of $0.9 million, non-cash lease expenses of $0.7 million, and depreciation and amortization of $0.3 million.

During the year ended December 31, 2022, net cash used in operating activities of $11.0 million consisted of a net loss of $42.8 million, partially offset by a change in net operating assets and liabilities of $26.9 million and net non-cash operating expenses of $4.9 million. The change in net operating assets and liabilities was primarily attributable to an increase in prepaid expenses, accrued expenses and deferred revenue of $28.4 million, partially offset by a decrease in other current assets, accounts payable and operating lease liability of $1.5 million. The non-cash operating expenses consisted mainly of a $2.4 million change in fair value of convertible notes, stock-based compensation expense of $1.2 million, non-cash lease expenses of $0.8 million and depreciation expense of $0.5 million.

During the year ended December 31, 2021, net cash used in operating activities of $33.0 million consisted of a net loss of $37.6 million and a change in net operating assets and liabilities of $3.7 million, partially offset by net non-cash operating expenses of $0.9 million. The change in net operating assets and liabilities was primary attributable to an increase in prepaid expenses, other noncurrent assets, accounts payable and accrued expenses and other current liabilities of $3.7 million. The non-cash operating expenses consisted mainly of stock-based compensation expense of $0.8 million and amortization of debt costs of $0.1 million.

Investing Activities

For the nine months ended September 30, 2023 and 2022, and the years ended December 31, 2022 and 2021, net cash used in investing activities consisted of purchases for property and equipment.

Financing Activities

For the nine months ended September 30, 2023, net cash provided by financing activities consisted of $5.5 million of proceeds from the borrowings under a new loan and security agreement and $31 thousand of proceeds from the exercise of common stock options offset by payments of $5.3 million associated with the repayment of Q32's initial loan and security agreement.

For the nine months ended September 30, 2022, net cash provided by financing activities consisted of $13.3 million of proceeds from the issuance of Q32's convertible notes and $69 thousand of proceeds from the exercise of common stock options.

For the year ended December 31, 2022, net cash provided by financing activities consisted of $30.0 million of proceeds from the issuance of Q32's convertible notes and $69 thousand of proceeds from the exercise of common stock options.

For the year ended December 31, 2021, net cash provided by financing activities consisted of $20.0 million for proceeds from the issuance of Q32's Series B convertible preferred stock and $0.1 million of proceeds from the exercise of common stock options.

Pre-Closing Financing

In connection with the Merger Agreement, certain third parties have entered into the Q32 Pre-Closing Financing as described above under "—Recent Developments—Proposed Merger with Homology and the Q32 Pre-Closing Financing." The Q32 Pre-Closing Financing is contingent upon, and will occur immediately prior to, the closing of the Merger, subject to customary closing conditions. Shares of Q32 common stock issued pursuant to the Q32 Pre-Closing Financing will be converted into shares of Homology common stock in accordance with the exchange ratio at the Effective Time as calculated pursuant to the Merger Agreement.

Future Funding Requirements

Management expects Q32's expenses to increase substantially in connection with its ongoing research and development activities, particularly as it advances the preclinical activities and clinical trials of its product candidates. In addition, upon the completion of the Merger, Q32 expects to incur additional costs associated with operating as a public company.

Because of the numerous risks and uncertainties associated with research, development and commercialization of product candidates, Q32 is unable to estimate the exact amount and timing of its capital requirements. Q32's future funding requirements will depend on many factors, including:

- the scope, timing, progress, results, and costs of researching and developing bempikibart and ADX-097, and conducting larger and later-stage clinical trials;
- the scope, timing, progress, results, and costs of researching and developing other product candidates that Q32 may pursue;
- the costs, timing, and outcome of regulatory review of Q32's product candidates;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing, and distribution, for any of Q32's product candidates for which it receives marketing approval;
- the costs of manufacturing commercial-grade products and sufficient inventory to support commercial launch;
- the revenue, if any, received from commercial sale of Q32's products, should any of product candidates receive marketing approval;
- the cost and timing of attracting, hiring, and retaining skilled personnel to support Q32's operations and continued growth;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing Q32's intellectual property rights and defending intellectual property-related claims;
- Q32's ability to establish, maintain, and derive value from collaborations, partnerships or other marketing, distribution, licensing, or other strategic arrangements with third parties on favorable terms, if at all;
- the extent to which Q32 acquires or in-licenses other product candidates and technologies, if any; and
- the costs associated with operating as a public company.

A change in the outcome of any of these or other factors with respect to the development of any of Q32's product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, Q32's operating plans may change in the future, and Q32 may need additional capital to meet the capital requirements associated with such operating plans.

Q32 believes that, based on its current operating plan, the anticipated net proceeds of the Q32 Pre-Closing Financing, together with the combined company's cash and cash equivalents will enable Q32 to fund its operating expenses and capital expenditure requirements into mid-2026. Management based its projections of operating capital requirements on Q32's current operating plan, which includes several assumptions that may prove to be incorrect, and Q32 may use all of its available capital resources sooner than management expects.

To complete the development of Q32's product candidates and to build the sales, marketing and distribution infrastructure that management believes will be necessary to commercialize product candidates, if approved, Q32 will require substantial additional capital. Accordingly, until such time that Q32 can generate a sufficient revenue from product sales or other sources, if ever, management expects to seek to raise any necessary additional capital through private or public equity or debt financings, loans or other capital sources, which could include income from collaborations, partnerships or other marketing, distribution, licensing or other strategic arrangements with third parties, or from grants. To the extent that Q32 raises additional capital through equity financings or convertible debt securities, the ownership interest of its stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of its common stockholders. Debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting Q32 ability to take specific actions, including restricting its operations and limiting its ability to incur liens, issue additional debt, pay dividends, repurchase its own common stock, make certain investments or engage in merger, consolidation, licensing, or asset sale transactions. If Q32 raises capital through collaborations, partnerships, and other similar arrangements with third parties, it may be required to grant rights to develop and market product candidates that Q32 would otherwise prefer to develop and market themselves. Q32 may be unable to raise additional capital from these sources on favorable terms, or at all. Q32's ability to raise additional capital may be adversely impacted by potential worsening global economic conditions and the recent disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from recent bank failures. The failure to obtain sufficient capital on acceptable terms when needed could have a material adverse effect on Q32's business, results of operations or financial condition, including requiring Q32 to delay, reduce or curtail its research, product development or future commercialization efforts. Q32 may also be required to license rights to product candidates at an earlier stage of development or on less favorable terms than Q32 would otherwise choose. Management cannot provide assurance that Q32 will ever generate positive cash flow from operating activities.

Contractual Obligations and Commitments

Lease Obligations

Q32 leases space under an operating lease for administrative offices and lab space in Waltham, Massachusetts, which expires in December 2031.

The following table summarizes Q32's contractual obligations and commitments as of September 30, 2023 (in thousands):

	Payments Due by Period				
	Total	Less than 1 Year	1 to 3 years	3 to 5 years	More than 5 years
Operating lease obligation	**$9,399**	$ 249	$3,181	$3,475	$2,494

Q32 has agreements with certain vendors for various services, including services related to preclinical and clinical operations and support, for which Q32 is not contractually able to terminate for convenience and avoid any and all future obligations to the vendors. Q32's most significant contracts relate to agreements with CROs for clinical trials and preclinical studies and CDMOs, which Q32 enters into in the normal course of business. Certain agreements provide for termination rights subject to termination fees or wind down costs. Under such agreements, Q32 is contractually obligated to make certain payments to vendors to reimburse them for their unrecoverable outlays incurred prior to cancellation. The exact amounts of such obligations are dependent on the timing of termination and the exact terms of the relevant agreement and cannot be reasonably estimated. Q32 does not include these payments in the table above as they are not fixed and estimable.

In addition, Q32 enters into standard indemnification agreements and/or indemnification sections in other agreements in the ordinary course of business. Pursuant to these agreements, Q32 agrees to indemnify, hold

harmless and reimburse the indemnified party for losses suffered or incurred by the indemnified party, generally its business partners. The term of these indemnification agreements is generally perpetual upon execution of the agreement. The maximum potential amount of future payments Q32 could be required to make under these indemnification agreements cannot be reasonably estimated and therefore is not included in the table above.

Collaboration and License Agreements

ADX-097 - License Agreement – The Regents of the University of Colorado

In August 2017, Q32 entered into an exclusive license agreement, as amended in February 2018, September 2018, and April 2019, or the Colorado License Agreement, with The Regents of the University of Colorado, or Colorado, pursuant to which Q32 obtained worldwide, royalty-bearing, sublicensable licenses under certain patents and know-how owned by Colorado and Medical University of South Carolina, or MUSC, relating to the research, development and commercialization of ADX-097. The licenses granted to Q32 are exclusive with respect to certain patent families and know-how and non-exclusive with certain other patent families and know-how. The licenses granted to Q32 are also subject to certain customary retained rights of Colorado and MUSC and rights of the United States government owing to federal funding giving rise to inventions covered by the licensed patents. Q32 agreed to use commercially reasonable efforts to develop, manufacture and commercialize ADX-097, including by using commercially reasonable efforts to achieve specified development and regulatory milestones by specified dates.

In addition, Q32 agreed to pay Colorado (i) development and sales milestone payments in an aggregate amount of up to $2.2 million per licensed product for the first three products, (ii) tiered royalty rates on cumulative net sales of licensed products in the low single digit percentages, (iii) 15% of sublicense income and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents. Q32's obligation to pay royalties to Colorado commences, on a licensed product-by-licensed product and country-by-country basis, from the first commercial sale of a licensed product in any country and expires on the later of (i) the last to expire valid claim within the licensed patents covering such licensed product in such country, and (ii) 20 years following the effective date of the Colorado License Agreement, or April 2037, or the Royalty Term.

Unless earlier terminated by either party pursuant to its terms, the Colorado License Agreement will expire upon the expiration of the Royalty Term in all countries. Q32 may terminate the Colorado License Agreement for convenience upon providing prior written notice to Colorado. Colorado may terminate the Colorado License Agreement or convert Q32's exclusive license to a non-exclusive license if Q32 breaches certain obligations under the Colorado License Agreement and fails to cure such breach. The Colorado License Agreement will terminate automatically upon Q32's dissolution, insolvency, or bankruptcy. Q32 has the right to terminate the agreement for any reason upon written notice, and therefore, this agreement has not been included in the discussion above.

Bempikibart - License Agreement – Bristol-Myers Squibb Company

In September 2019, Q32 entered into a license agreement, as amended in August 2021 and July 2022, or the BMS License Agreement, with Bristol-Myers Squibb Company, or BMS, pursuant to which Q32 obtained sublicensable licenses from BMS to research, develop and commercialize licensed products, including bempikibart, for any and all uses worldwide. The licenses granted to Q32 are exclusive with respect to BMS's patent rights and know-how relating to certain antibody fragments (including certain fragments of bempikibart) and non-exclusive with respect to BMS's patent rights and know-how relating to the composition of matter and use of a specific region of bempikibart. BMS retained the right for it and its affiliates to use the exclusively licensed patents and know-how for internal, preclinical research purposes. Under the BMS License Agreement, Q32 is prohibited from engaging in certain clinical development or commercialization of any antibody other than a licensed compound with the same mechanism of action until the earlier of the expiration of Q32's obligation to pay BMS royalties or September 2029.

In consideration for the license, Q32 made an upfront payment to BMS of $8 million, issued 6,628,788 Series A preferred shares to BMS and agreed to use commercially reasonable efforts to develop and commercialize at least one licensed product in key geographic markets. In addition, Q32 agreed to pay BMS (i) development and regulatory milestone payments in aggregate amounts ranging from $32 million to $49 million per indication for the first three indications and commercial milestone payments in an aggregate amount of up to $215 million on net sales of licensed products, (ii) tiered royalties ranging from rates in the mid-single digit percentages to up to 10% of net sales, with increasing rates depending on the cumulative net sales, (iii) up to 60% of sublicense income, which percentage decreases based on the development stage of bempikibart at the time of the sublicensing event, and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents.

Q32's obligation to pay BMS royalties under subsection (ii) above commences, on a licensed product-by-licensed product and country-by-country basis, on the first commercial sale of a licensed product in a country and expires on the later of (x) 12 years from the first commercial sale of such Licensed Product in such country, (y) the last to expire licensed patent right covering bempikibart or such licensed product in such country, and (z) the expiration or regulatory or marketing exclusivity for such licensed product in such country, or the Royalty Term). If Q32 undergoes a change of control prior to certain specified phase of development, the development and milestone payments are subject to increase by a low double digit percentage and the royalty rates are subject to increase by a low sub-single digit percentage.

Unless terminated earlier by either party pursuant to its terms, the BMS License Agreement will expire on a country-by-country and licensed product-by-licensed product basis upon the expiration of the last to expire Royalty Term with respect to such licensed product in such country. Either party may terminate the BMS License Agreement for the other party's material breach, subject to a specified notice and cure period. BMS may terminate the BMS License Agreement if Q32 fails to meet its diligence obligations under the BMS License Agreement, for Q32's insolvency, or if Q32 or its affiliates challenges the validity, scope, enforceability, or patentability of any of the licensed patents. Q32 may terminate the BMS License Agreement for any reason upon prior written notice to BMS, with a longer notice period if a licensed product has received regulatory approval. If the BMS Agreement is terminated for Q32's material breach, BMS will regain rights to bempikibart and Q32 must grant BMS an exclusive license under Q32's patent rights covering bempikibart, subject to a low single digit percentage royalty on net sales of bempikibart payable to Q32 by BMS. Q32 has the right to terminate the agreement for any reason upon written notice, and therefore, this agreement has not been included in the discussion above.

Bempikibart – Collaboration and Option Agreement, Asset Purchase Agreement and Termination Agreement – Horizon Therapeutics Ireland DAC)

From August 2022 until November 2023, Q32 was a party to the Collaboration and Option Agreement, or the Horizon Collaboration Agreement, and the Asset Purchase Agreement, or the Purchase Agreement, and together with the Horizon Collaboration Agreement, the Horizon Agreements, each with Horizon, pursuant to which Q32 received $55.0 million in initial consideration and staged development funding to complete two ongoing Phase 2 trials for bempikibart, and granted Horizon an option to acquire the bempikibart program at a prespecified price, subject to certain adjustments.

In October 2023, Amgen completed the acquisition of Horizon plc. Following its acquisition of Horizon plc, Q32 agreed with Amgen to mutually terminate the Horizon Agreements and in November 2023, Q32 and Horizon entered into a termination agreement, or the Horizon Termination Agreement, pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, Q32 retained all initial consideration and development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to bempikibart. In consideration for the Horizon Termination Agreement, Q32 agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart.

Critical Accounting Policies and Significant Judgments and Estimates

Management's discussion and analysis of its financial condition and results of operations is based on its consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, as well as the reported expenses incurred during the reporting periods. Management considers many factors in selecting appropriate financial accounting policies and controls, and in developing the estimates and assumptions that are used in the preparation of these consolidated financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. Actual results could materially differ from those estimates.

While Q32's significant accounting policies are described in more detail in the notes to its consolidated financial statements and the notes to its unaudited interim condensed consolidated financial statements appearing elsewhere in this proxy statement/prospectus, management believes that the following accounting policies are those most critical to the judgments and estimates used in the preparation of Q32's consolidated financial statements.

Revenue Recognition

Under ASC Topic 606, Revenue from Contracts with Customers (Topic 606), an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration that the entity expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price, including variable consideration, if any; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the entity satisfies a performance obligation. Q32 only applies the five-step model to contracts when it is probable that the entity will collect the consideration to which it is entitled in exchange for the goods or services it transfers to the customer.

Once a contract is determined to be within the scope of Topic 606, Q32 assesses the goods or services promised within each contract and determines those that are performance obligations.

Arrangements that include rights to additional goods or services that are exercisable at a customer's discretion are generally considered options. Q32 assesses if these options provide a material right to the customer and if so, they are considered performance obligations. The identification of material rights requires judgments related to the determination of the value of the underlying good or service relative to the option exercise price. The exercise of a material right is accounted for as a contract modification for accounting purposes.

Q32 assesses whether each promised good or service is distinct for the purpose of identifying the performance obligations in the contract. This assessment involves subjective determinations and requires management to make judgments about the individual promised goods or services and whether such are separable from the other aspects of the contractual relationship. Promised goods and services are considered distinct provided that: (i) the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer (that is, the good or service is capable of being distinct) and (ii) the entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract (that is, the promise to transfer the good or service is distinct within the context of the contract). In assessing whether a promised good or service is distinct, Q32 considers factors such as the license

terms, the research, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. Q32 also considers the intended benefit of the contract in assessing whether a promised good or service is separately identifiable from other promises in the contract. If a promised good or service is not distinct, an entity is required to combine that good or service with other promised goods or services until it identifies a bundle of goods or services that is distinct.

The transaction price is determined and allocated to the identified performance obligations in proportion to their stand-alone selling prices (SSP) on a relative SSP basis. SSP is determined at contract inception and is not updated to reflect changes between contract inception and when the performance obligations are satisfied. Determining the SSP for performance obligations requires significant judgment. In developing the SSP for a performance obligation, Q32 considers applicable market conditions and relevant entity-specific factors, including factors that were contemplated in negotiating the agreement with the customer and estimated costs. Q32 validates the SSP for performance obligations by evaluating whether changes in the key assumptions used to determine the SSP will have a significant effect on the allocation of arrangement consideration between multiple performance obligations.

If the consideration promised in a contract includes a variable amount, Q32 estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. Q32 determines the amount of variable consideration by using the expected value method or the most likely amount method. The amount of variable consideration included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty related to the variable consideration is resolved. At the end of each subsequent reporting period, Q32 re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment.

If an arrangement includes development and regulatory milestone payments, Q32 evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within Q32's control or the licensee's control, such as regulatory approvals, are generally not considered probable of being achieved until those approvals are received.

For arrangements with licenses of intellectual property that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, Q32 recognizes royalty revenue and sales-based milestones at the later of (i) when the related sales occur, or (ii) when the performance obligation to which the royalty has been allocated has been satisfied.

In determining the transaction price, Q32 adjusts consideration for the effects of the time value of money if the timing of payments provides Q32 with a significant benefit of financing. Q32 does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the licensees and the transfer of the promised goods or services to the licensees will be one year or less.

Q32 recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) each performance obligation is satisfied, either at a point in time or over time, and if over time recognition is based on the use of an output or input method.

Research and Development Expenses and Related Accrued Expenses

Research and development costs are expensed as incurred. Research and development expenses are comprised of costs incurred in performing research and development activities, including salaries, stock-based

compensation and benefits, costs for clinical research organizations, manufacturing expenses and costs of other outside vendors and other outsourced activities; laboratory supplies; technology licenses, software and other information technology support; facilities and depreciation.

Upfront payments and milestone payments made for the licensing of technology are expensed as research and development expenses in the period in which they are incurred. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed.

As part of the process of preparing Q32's consolidated financial statements, management is required to estimate its accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with its personnel to identify services that have been performed on its behalf and estimating the level of service performed and the associated costs incurred for the services when Q32 has not yet been invoiced or otherwise notified of the actual costs. The majority of its service providers invoice Q32 in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advanced payments. Management makes estimates of its accrued expenses as of each balance sheet date in its financial statements based on facts and circumstances known to Q32 at that time. Management periodically confirms the accuracy of the estimates with the service providers and make adjustments if necessary. Examples of estimated accrued research and development expenses include fees paid to:

- CROs and investigative sites in connection with performing research services, preclinical studies and clinical trials;
- vendors, including research laboratories, in connection with preclinical and clinical development activities; and
- vendors, including CDMOs, related to product manufacturing, development and distribution of preclinical studies and clinical trial materials.

Management bases the expense recorded related to contract research and manufacturing on its estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CDMOs and CROs that supply materials and conduct services. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to its vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, management estimates the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, management adjusts the accrual or prepaid expense accordingly. Although Q32 does not expect its estimates to be materially different from amounts actually incurred, its understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period.

Convertible Notes

Q32 accounts for all Convertible Notes issued under the fair value option election of ASC 825, *Financial Instruments* (ASC 825). The financial instrument is initially measured at its issue-date estimated fair value and then subsequently remeasured at estimated fair value on a recurring basis at each reporting period date. The estimated fair value adjustment is recognized within other income (expense) in the accompanying consolidated statements of operations and the portion of the fair value adjustment attributed to a change in the instrument-specific credit risk is recognized as a component of other comprehensive loss, if any. The fair value is based on significant inputs not observable in the market, namely potential financing scenarios, the likelihood of such scenarios, the expected time for each scenario to occur, and the required market rates of return utilized in modeling these scenarios. Q32 recorded $5.0 million. and $2.4 million loss related to the change in fair value of the Convertible Notes for the nine months ended September 30, 2023 and for the year ended December 31, 2022, respectively.

Stock-Based Compensation Expense

Q32 accounts for stock-based awards in accordance with ASC Topic 718, Compensation—Stock Compensation (ASC 718). ASC 718 requires all stock-based awards issued to employees and members of Q32's board of directors (the "Board") for their services to be recognized as expense in the statements of operations based on their grant date fair values. Q32 uses the value of its common stock to determine the fair value of its stock-based awards. For stock options and time-based restricted stock awards, Q32 expenses the fair value of the awards on a straight-line basis over each award's service period, which is generally the period in which the related services are received. For performance-based stock awards, Q32 uses the accelerated attribution method to expense the awards over the implicit service period based on the probability of achieving the performance conditions. Q32 accounts for stock-based awards to non-employees consistently with the accounting for awards to employees and measures stock-based awards granted to non-employees based on their grant date fair value and recognizes the resulting value as stock-based compensation expense during the period the related services are rendered. Q32 accounts for forfeitures as they occur.

Fair Value of Stock-Based Awards

Q32 determines the fair value of restricted stock awards in reference to the fair value of its common stock less any applicable purchase price. Management estimates the fair value of Q32's stock options granted with service-based conditions using the Black-Scholes option pricing model, which requires inputs of subjective assumptions, including: (i) the expected volatility of our common stock, (ii) the expected term of the award, (iii) the risk-free interest rate, (iv) expected dividends and (v) the fair value of its common stock. Due to the lack of a public market for the trading of our common stock and a lack of company-specific historical and implied volatility data, management bases the estimate of expected volatility on the historical volatilities of a representative group of publicly traded guideline companies. For these analyses, it selects companies with comparable characteristics and with historical share price information that approximates the expected term of the stock-based awards. Management computes the historical volatility data using the daily closing prices for the selected companies' shares during the equivalent period that approximates the calculated expected term of its stock options. Management will continue to apply this method until a sufficient amount of historical information regarding the volatility of its own stock price becomes available. Q32 estimates the expected term of its stock options granted to employees and directors using the simplified method, whereby the expected term equals the average of the vesting term and the original contractual term of the option. It utilizes this method as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. The expected dividend yield is assumed to be zero as Q32 has no current plans to pay any dividends on common stock. Q32 has elected to use the expected term for stock options granted to non-employees, using the simplified method, as the basis for the expected term assumption. However, we may elect to use either the contractual term or the expected term for stock options granted to non-employees on an award-by-award basis.

Determination of the Fair Value of Common Stock

Given the absence of an active market for its common stock, the fair values of the shares of common stock underlying Q32's stock-based awards were determined on each grant date by the Board with input from management, considering its most recently available third-party valuations of its common stock and the Board's assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the grant date. Historically, these independent third-party valuations of its equity instruments were performed contemporaneously with identified value inflection points. The third-party valuations were prepared in accordance with the framework of the American Institute of Certified Public Accountants' Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, or the Practice Aid. The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock to determine the estimated fair value of common stock at each valuation date.

In addition to considering the results of these third-party valuations, the Board considered various objective and subjective factors to determine the fair value of Q32's equity instruments as of each grant date, which may be later than the most recently available third-party valuation date, including:

- the lack of liquidity of its equity as a private company;
- the prices of its convertible preferred stock sold to outside investors in arm's length transactions and the rights, preferences and privileges of its convertible preferred stock as compared to those of its common stock, including the liquidation preferences of its convertible preferred stock;
- the progress of its research and development efforts, including the status of preclinical studies and clinical trials for its product candidates;
- its stage of development and business strategy and the material risks related to its business and industry;
- the achievement of enterprise milestones, including entering into strategic collaborative and license agreements;
- the valuation of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed mergers and acquisitions of peer companies;
- any external market conditions affecting the biotechnology industry and trends within the biotechnology industry;
- the likelihood of achieving a liquidity event, such as an initial public offering or a sale of Q32, given prevailing market conditions; and
- the analysis of initial public offerings and the market performance of similar companies in the biotechnology industry.

For financial statement purposes, management performed common stock valuations at various dates, which resulted in valuation of its common stock of $0.81 per share as of September 15, 2023, $0.36 per share as of September 30, 2022, and $0.35 per share as of December 27, 2021. There are significant judgments and estimates inherent in these valuations. These judgments and estimates include assumptions regarding its future operating performance, the stage of development of our product candidates, the timing and probability of a potential initial public offering or other liquidity event and the determination of the appropriate valuation methodology at each valuation date. The assumptions underlying these valuations represent management's best estimates, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and management uses significantly different assumptions or estimates, its stock-based compensation expense could be materially different.

Once a public trading market for its common stock has been established in connection with the completion of the merger, it will no longer be necessary for the Board to estimate the fair value of its common stock in connection with its accounting for granted stock options and restricted stock awards, as the fair value of its common stock will be determined based on the trading price of its common stock on Nasdaq.

Valuation Methodologies

Q32 used a hybrid of the probability-weighted expected returns method, or PWERM, and the Option Pricing Method, or OPM, when allocating enterprise value to classes of securities.

Under the PWERM, the value of an enterprise, and its underlying common stock are estimated based on an analysis of future values for the enterprise, assuming various outcomes. The value of the common stock is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes and the rights of each class of equity. The future values of the common stock under the various outcomes are discounted back to the valuation date at an appropriate risk-adjusted discount rate and then probability weighted to determine the value for the common stock.

The OPM treats common stock and preferred stock as call options on the enterprise's equity value, with exercise prices based on the liquidation preferences of the preferred stock. Under this method, the common stock has value only if the funds available for distribution to stockholders exceed the value of the liquidation preferences at the time of a liquidity event. The Black-Scholes option pricing model is used to price the call option, and the model includes assumptions for the time to liquidity and the volatility of equity value.

The hybrid method is a blend of the PWERM and OPM, estimating the probability-weighted value across multiple scenarios and then using the OPM to estimate the allocation of value within one or more of those scenarios. When using the hybrid method, Q32 assumed three scenarios: an early initial public offering, or IPO, scenario, a late IPO scenario and a remain-private scenario. The IPO scenarios reflect an exit or liquidity event by means of a sale of common stock to the public where the estimated IPO price is based, in part, on a review of recent IPO information of comparable public companies at a similar stage to us at the time of their IPO. The comparable IPO companies considered for these scenarios consisted of biopharmaceutical companies at various stages of development ranging from discovery stage to completion of early-stage clinical trials. Additional comparable IPO companies at similar product development stages in the broader biopharmaceutical industry were also considered. We converted the estimated future value in an IPO to present value using a risk-adjusted discount rate. The equity value for the remain-private scenario was estimated using the discounted cash flow method or by back-solving to the price of recently issued preferred stock. In the remain-private scenario, value is allocated to our equity securities using the OPM. In the OPM, volatility is estimated based on the trading histories of selected guideline public companies. The relative probability of each scenario was determined based on an assessment of then-current market conditions and our expectations as to timing and prospects of an IPO.

Recently Issued and Adopted Accounting Pronouncements

A description of recently issued and certain recently adopted accounting pronouncements that have or may potentially impact Q32's financial position and results of operations is included in Note 2 to Q32's audited consolidated financial statements and in Note 2 to its unaudited condensed consolidated financial statements both appearing elsewhere in this proxy statement/prospectus.

Quantitative and Qualitative Disclosures About Market Risk

As of December 31, 2022 and 2021, and September 30, 2023, Q32 had cash, cash equivalents, restricted cash, and restricted cash equivalents of $49.5 million, $32.9 million, and $41.9 million, respectively, which consisted of cash and money market funds. Interest income is sensitive to changes in the general level of interest rates; however, due to the nature of these investments, an immediate 10% change in market interest rates would not have a material effect on the fair market value of Q32's cash or cash equivalents.

All of Q32's employees and operations are currently located in the United States. Q32 has, from time to time, engaged in contracts with contractors or other vendors in a currency other than the U.S. dollar. To date, Q32 has had minimal exposure to fluctuations in foreign currency exchange rates as the time period between the date that transactions are initiated, and the date of payment or receipt of payment is generally of short duration. Accordingly, Q32 believes it does not have a material exposure to foreign currency risk.

Inflation generally affects Q32 by increasing its cost of labor. Q32 does not believe that inflation had a material effect on its business, financial condition or results of operations during the years ended December 31, 2022 or 2021 or during the nine months ended September 30, 2023 and 2022.

MANAGEMENT FOLLOWING THE MERGER

Executive Officers and Directors

Executive Officers and Directors of the Combined Company Following the Merger

The combined company's board of directors will initially be fixed at nine members, consisting of (i) seven members designated by the Q32 board of directors, including seven current Q32 board members, namely Jodie Morrison, Bill Lundberg, David Grayzel, Diyong Xu, Isaac Manke, Kathleen LaPorte and Mark Iwicki, and (ii) two current Homology board members, namely Arthur Tzianabos and Mary Thistle. The staggered structure of the current Homology board of directors will remain in place for the combined company following the completion of the Merger. Each of the directors other than Jodie Morrison and Arthur Tzianabos will meet the Nasdaq independence requirements.

The following table lists the names and ages, as of December 31, 2023, and positions of the individuals who are expected to serve as executive officers and directors of the combined company upon completion of the Merger:

Name	Age	Position
Executive Officers:		
Jodie Morrison	48	Chief Executive Officer and Director
Lee Kalowski	42	Interim Chief Financial Officer
Jason A. Campagna	53	Chief Medical Officer
Shelia M. Violette	63	Chief Scientific Officer and President of Research
Non-Employee Directors:		
Arthur Tzianabos	60	Director
Mary Thistle	64	Director
Bill Lundberg	60	Director
David Grayzel	56	Director
Diyong Xu	41	Director
Isaac Manke	46	Director
Kathleen LaPorte	62	Director
Mark Iwicki	57	Director

Executive Officers

Jodie Morrison. Ms. Morrison has served as a member of Q32's board of directors since September 2022. Ms. Morrison is currently the Chief Executive Officer of Q32, where she has been employed since September 2022. Prior to joining Q32, Ms. Morrison was a Venture Partner at Atlas Venture from July 2021 to September 2022, Chief Executive Officer of Cadent Therapeutics from January 2019 to March 2021, and Chief Executive Officer of Keryx Biopharmaceuticals from April 2018 until December 2018. Ms. Morrison has also served as an Advisor at Atlas Venture since January 2019. She also currently sits on the board of directors of Rectify Pharmaceuticals. She has previously served as the chair of the board at Ribon Therapeutics and held board positions at Aileron Therapeutics, Akebia and Keryx. Ms. Morrison received a certificate through the Greater Boston Executive Program at the MIT Sloan School of Management, a clinical research certification from Boston University School of Medicine, and B.A. in Neuroscience from Mount Holyoke College. Q32 believes Ms. Morrison's experience in the biopharmaceutical industry provides her with the qualifications and skills to serve as a director of the combined company.

Lee Kalowski. M.B.A. Mr. Kalowski has served as Q32's Interim Chief Financial Officer since October 2023 and has also served as a consultant to the life sciences industry since October 2023. Prior to joining Q32, Mr. Kalowski served as Chief Financial Officer from July 2017 to June 2023 and as President from January 2019 to June 2023 of Bicycle Therapeutics. Previously, Mr. Kalowski was Chief Financial Officer of

Tokai Pharmaceuticals. Prior to Tokai, Mr. Kalowski served in global biotechnology equity research at Credit Suisse, where he covered companies in the biopharmaceutical industry as a Senior Analyst. Mr. Kalowski received a B.A. in biology and economics from Union College and an M.B.A. from The Wharton School of the University of Pennsylvania.

Jason A. Campagna, M.D., Ph.D.. Dr. Campagna is currently the Chief Medical Officer of Q32, where he has been employed since March 2021. Prior to this role, Dr. Campagna was Chief Medical Officer at Intercept Pharmaceuticals from November 2019 to March 2021, and where he also served as Senior Vice President and Global NASH Lead from August 2016 to November 2019. From December 2020 to March 2023, Dr. Campagna served on the board of directors for Plantable Health. Dr. Campagna holds an M.D./Ph.D. in Molecular and Cellular Pharmacology from the University of Miami Miller School of Medicine and a B.S. in Biology from the University of Miami.

Shelia M. Violette, Ph.D. Dr. Violette is currently the Chief Scientific Officer and President of Research of Q32, where she has been employed since September 2017. Prior to this role, Dr. Violette was an Entrepreneur in Residence at Atlas Venture from November 2016 to September 2017, and she has continued to serve as an Advisor since September 2017. From July 2016 to June 2021, Dr. Violette was an Adjunct Associate Professor at Yale University School of Medicine's Department of Internal Medicine. Prior to that position, Dr. Violette held several senior roles in research at Biogen from March 2012 to October 2016. Dr. Violette currently serves on the Scientific Advisory Boards of Triveni Bio Inc., Morphic Therapeutics, Inc., Mediar Therapeutics Inc., and APIE Therapeutics Inc. Dr. Violette also served on the board of directors of Cytimmune Science from October 2021 to June 2023, and she was on the Scientific Advisory Boards of Scholar Rock Holding Corporation from April 2017 to December 2022, Enleofen Bio Pte Ltd from June 2017 to April 2020, and NuMedii, Inc. from February 2018 to February 2019. Dr. Violette holds a Ph.D. in Pharmacology from Yale University and a B.S. in Pharmacology from the Massachusetts College of Pharmacy.

Non-Employee Directors

Arthur O. Tzianabos, Ph.D. Dr. Tzianabos has served as the Chairman of Homology's board of directors since September 2022 and he has served as a member of Homology's board of directors since April 2016. Dr. Tzianabos has served as Venture Partner at 5AM Ventures since September 2022. Dr. Tzianabos was Homology's President and Chief Executive Officer from April 2016 to September 2022. Dr. Tzianabos joined Homology from OvaScience, Inc., a biotechnology company (which has since merged with and into Millendo Therapeutics, Inc.), where he served as President and Chief Scientific Officer from September 2013 to March 2016. Prior to OvaScience, Dr. Tzianabos spent eight years at Shire plc, a biotechnology company, where he served in positions of increasing responsibility, including Senior Director, Discovery Research, Vice President, Program Management and Senior Vice President and Head, Research and Early Development. From 1992 to 2005, Dr. Tzianabos was a faculty member at Harvard Medical School and maintained laboratories at the Channing Laboratory, Brigham and Women's Hospital and the Department of Microbiology and Molecular Genetics at Harvard Medical School. Dr. Tzianabos has served as a director of Stoke Therapeutics, Inc., a public biotechnology company, since April 2018. Dr. Tzianabos previously served as chairman of the board of directors of Akouos, Inc., a public biotechnology company, from July 2018 until its acquisition by Eli Lilly in December 2022, and a director of BIND Therapeutics, Inc., a biotechnology company, from October 2015 until its acquisition by Pfizer in July 2016. Dr. Tzianabos holds a B.S. in Biology from Boston College and a Ph.D. in Microbiology from the University of New Hampshire, and completed a Post-Doctoral Fellowship in Immunology at Harvard Medical School. Dr. Tzianabos' extensive academic and clinical experience, as well as his knowledge of Homology and the industry, qualifies him to serve on the combined company's board of directors.

Mary Thistle. Ms. Thistle has served as a member of Homology's board of directors since 2018. Ms. Thistle has served as Special Advisor to the Bill & Melinda Gates Medical Research Institute, a non-profit biotech organization, from the fall of 2020 to June 2022, and previously served as the organization's Chief of Staff from January 2018 to the fall of 2020. Prior to that, she held senior leadership positions at Dimension Therapeutics,

Inc., a gene therapy company, including Chief Operating Officer from 2016 to 2017 and Chief Business Officer from 2015 to 2016. Prior to joining Dimension Therapeutics, Inc., she spent six years at Cubist Pharmaceuticals, Inc., a biopharmaceutical company, where she held various leadership positions, including Senior Vice President, Business Development from 2014 to 2015, Vice President, Business Development from 2012 to 2013 and Senior Director, Business Development from 2009 to 2012. Prior to that, she held various positions at ViaCell, Inc. and PerkinElmer Inc. Ms. Thistle has served on the board of directors of Alaunos Therapeutics, Inc., formerly known as Ziopharm Oncology, Inc. since November 2020, Entrada Therapeutics, Inc. since May 2021 and Vigil Neuroscience, Inc. since April 2022. Ms. Thistle holds a B.S. in Business and Accounting from the University of Massachusetts, Boston and is a former Certified Public Accountant. Ms. Thistle is qualified to serve on the combined company's board of directors due to her finance and business development background and industry experience.

Bill Lundberg, M.D. Dr. Lundberg has served on Q32's board of directors since December 2017. In addition to his role at Q32, Dr. Lundberg is the Chief Executive Officer, President, Principal Financial Officer and Director of Merus NV (NASDAQ: MRUS). Prior to that role, Dr. Lundberg has served as Chief Scientific Officer at CRISPR Therapeutics AG, a biotechnology company, from January 2015 until February 2018. Dr. Lundberg also served as Vice President and Head of Transitional Medicine at Alexion Pharmaceuticals, Inc. from February 2011 until January 2015. Prior to that position, Dr. Lundberg served as Director and Chief Medical Officer of Taligen Therapeutics, Inc., a biotechnology company, which was acquired by Alexion in 2011. Prior to Taligen, he held several senior roles in clinical drug development and medical affairs at Xanthus/Antisoma, Wyeth (now Pfizer), and Genzyme. Dr. Lundberg currently serves on the board of directors of the publicly traded life science company Vor Biopharma and Merus N.V. Dr. Lundberg holds an M.D. from Stanford University and M.B.A. from the University of Massachusetts. Q32 believes Dr. Lundberg is qualified to serve on the Board of Directors of the combined company because of his experience, expertise and leadership in the biopharmaceutical industry.

David Grayzel Since joining Atlas in 2010, Mr. Grayzel has co-founded and served as chief executive officer of numerous companies including Arteaus Therapeutics acquired by Eli Lilly in 2014, Annovation Biopharma acquired by The Medicines Company in 2015, and was a founding board member of both Delinia acquired by Celgene in 2017, and Cadent Therapeutics acquired by Novartis in 2021. David is a co-founder and board member of Q32 Bio and Vima Therapeutics, and also sits on the boards of Affinia Therapeutics, Aerovate Therapeutics (NASDAQ: AVTE), and TRIANA Biomedicines. He was previously a board director of Surface Oncology acquired by Coherus (NASDAQ: CHRS), Xilio Therapeutics (NASDAQ: XLO), and a board observer at Day One Biopharmaceuticals (NASDAQ: DAWN).

Diyong Xu. Mr. Xu has served as a member of Q32's Board of Directors since August 2020. Mr. Xu has also served as Principal of OrbiMed Advisors LLC since August 2012. Prior to joining OrbiMed, Mr. Xu worked for Lazard Freres & Co. in its Healthcare Investment Banking Group. Mr. Xu received his M.S. in Management Science and Engineering from Stanford University, M.S. in Molecular and Cellular Biology from Dartmouth College, and B.S. in Biology from Zhejiang University. Q32 believes Mr. Xu's experience in the life sciences industry provides him with the qualifications and skills to serve as a director of the combined company.

Isaac Manke. Dr. Manke has served as a member of Q32's Board of Directors since October 2020. Dr. Manke is currently a General Partner at Acorn Bioventures, where he focuses on investing in small cap public and private biotechnology companies. Prior to Acorn, Dr. Manke spent 11 years at New Leaf Venture Partners (NLV) through 2019. In addition to private venture investments, during his time at NLV, Dr. Manke also led the firm's public investment activities. Dr. Manke has been a board member for several public and private biotechnology companies. Dr. Manke received a B.A. in Biology and a B.A. in Chemistry at Minnesota State University (Moorhead), and a Ph.D. in Biophysical Chemistry and Molecular Structure at the Massachusetts Institute of Technology, or MIT. Q32 believes Dr. Manke's experience in the life sciences industry provides him with the qualifications and skills to serve as a director of the combined company.

Kathleen LaPorte. Ms. LaPorte has served as a member of Q32's board of directors since July 2021. In addition to her role at Q32, Ms. LaPorte has served as a director of Phoenix Biotech Acquisition Corp. (NASDAQ: PBAX), Precipio Diagnostics (NASDAQ: PRPO), 89Bio (NASDAQ: ENTB), D2G Oncology and Elysium Therapeutics. Ms. LaPorte also serves as the chair of the audit committees of both Bolt Biotherapeutics and Precipio Diagnostics, since 2020 and 2019, respectively. Ms. LaPorte co-founded New Leaf Ventures, served as a General Partner of The Sprout Group from 1993 until 2005, and was Chief Business Officer and Chief Executive Officer of Nodality Inc from 2014 until 2016. Prior to her current roles, Ms. LaPorte served on the California Institute for Regenerative Medicine. Ms. LaPorte holds a B.S. degree in Biology from Yale University and a M.B.A. from the Stanford University Graduate School of Business. Q32 believes Ms. LaPorte is qualified to serve on the Board of Directors of the combined company because of her significant leadership experience in the biopharmaceutical industry.

Mark Iwicki. Mr. Iwicki has served as the Chairman of Q32's board of directors since 2020. Mr. Iwicki currently serves as chairman and Chief Executive Officer of Kala Bio, Inc. Prior to this role, Mr. Iwicki served as President and Chief Executive Officer of Civitas Therapeutics, Inc. or Civitas, a biopharmaceutical company from January 2014 until November 2014, as well as President and Chief Executive Officer of Blend Therapeutics, Inc., or Blend, a pharmaceutical company, from December 2012 until January 2014. Prior to Blend, Mr. Iwicki served as President and Chief Executive Officer of Sunovion Pharmaceuticals Inc., or Sunovion, a pharmaceutical company from October 2007 until June 2012. Prior to joining Sunovion, Mr. Iwicki was Vice President and Business Unit Head at Novartis Pharmaceuticals Corporation, a biopharmaceutical company. He was at Novartis from March 1998 to October 2007. Prior to that, Mr. Iwicki held management positions at Astra Merck Inc. and Merck & Co., Inc. In addition to serving as Executive Chairman of our Board of Directors, Mr. Iwicki also currently serves on the boards of Akero Therapeutics, Third Harmonic, Aerovate and Merus. Mr. Iwicki holds a B.S. in Business Administration from Ball State University and an M.B.A. from Loyola University. Q32 believes Mr. Iwicki is qualified to serve on the Board of Directors of the combined company because of his significant leadership and investment experience in the biopharmaceutical industry.

Election of Officers

Q32's executive officers are appointed by, and serve at the discretion of, Q32's board of directors. There are no family relationships among any of Q32's directors or executive officers.

Board of Directors of the Combined Company Following the Merger

Homology's board of directors currently consists of eight directors divided into three staggered classes, with one class to be elected at each annual meeting to serve for a three-year term. The classified structure of the combined company board of directors will remain in place for the combined company following the completion of the Merger. It is anticipated that the incoming directors will be appointed to applicable vacant director seats of the combined company board of directors.

There are no family relationships among any of the proposed combined company directors and officers.

Committees of the Combined Company's Board of Directors

In connection with the completion of the Merger, the standing committees of the board of directors of the combined company will continue to be the following: audit committee, compensation committee and a nominating and corporate governance committee, and each will continue to operate pursuant to a charter, which is expected to be amended and restated by the combined company's board of directors in connection with the completion of the Merger. The combined company's board of directors also expects to establish a research and development committee, which will operate pursuant to a charter. The combined company's board of directors may establish other committees from time to time to assist it and its board of directors.

Audit Committee

The combined company's audit committee will oversee its corporate accounting and financial reporting process. Among other matters, the audit committee's responsibilities will include:

- appointing, approving the compensation of, and assessing the independence of, the combined company's independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by the combined company's independent registered public accounting firm;
- reviewing the overall audit plan with the combined company's independent registered public accounting firm and members of management responsible for preparing the combined company's financial statements;
- reviewing and discussing with management and the combined company's independent registered public accounting firm the combined company's annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by the combined company;
- coordinating the oversight and reviewing the adequacy of the combined company's internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending, based upon the audit committee's review and discussions with management and the combined company's independent registered public accounting firm, whether the combined company's audited financial statements shall be included in the combined company's Annual Report on Form 10-K;
- monitoring the integrity of the combined company's financial statements and the combined company's compliance with legal and regulatory requirements as they relate to the combined company's financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in the combined company's annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions;
- periodically review the combined company's enterprise risk management framework and major risk exposures, including the combined company's enterprise risk processes; and
- reviewing quarterly earnings releases.

Following the consummation of the Merger, the members of the audit committee are expected to be Kathleen LaPorte, Mary Thistle and Mark Iwicki. Kathleen LaPorte is expected to be the chair of the audit committee and is a financial expert under the rules of the SEC. To qualify as independent to serve on the combined company's audit committee, listing standards of Nasdaq and the applicable SEC rules require that a director not accept any consulting, advisory or other compensatory fee from the combined company, other than for service as a director, or be an affiliated person of the combined company. Homology and Q32 believe that, following the completion of the Merger, the composition of the audit committee will comply with the applicable requirements of the rules and regulations of Nasdaq and the SEC.

Compensation Committee

The combined company's compensation committee will oversee policies relating to compensation and benefits of its officers and employees. Among other matters, the compensation committee's responsibilities include:

- reviewing and approving the corporate goals and objectives relevant to the compensation of the combined company's officers and employees;

- evaluating the performance of the combined company's Chief Executive Officer in light of such corporate goals and objectives and, based on such evaluation, determining and approving or, at the request of the combined company's board of directors, recommending to the combined company's board of directors the compensation of the combined company's Chief Executive Officer;
- determining the compensation of the combined company's other executive officers;
- overseeing and administering the combined company's compensation and similar plans;
- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters and evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq rules;
- retaining and approving the compensation of any compensation advisors;
- reviewing and approving the grant of equity-based awards;
- reviewing and recommending to the combined company's board of directors the compensation of the combined company's non-employee directors; and
- preparing the compensation committee report required by SEC rules, if and when required, to be included in the combined company's annual proxy statement.

Following the consummation of the Merger, the members of the compensation committee are expected to be Mark Iwicki, Bill Lundberg and Isaac Manke. Mark Iwicki is expected to be the chair of the compensation committee. Each member of the combined company's compensation committee is expected to be a "non-employee" director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and independent within the meaning of the independent director guidelines of Nasdaq. Homology and Q32 believe that, following the completion of the Merger, the composition of the compensation committee will comply with the applicable requirements of the rules and regulations of Nasdaq.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee's responsibilities will include:

- developing and recommending to the combined company's board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating the combined company's board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the combined company's board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise the combined company;
- identifying individuals qualified to become members of the combined company's board of directors;
- recommending to the combined company's board of directors the persons to be nominated for election as directors and to each of the combined company board's committees;
- reviewing and recommending to the combined company's board of directors appropriate corporate governance guidelines; and
- overseeing the evaluation of the board of directors.

Following the consummation of the Merger, the members of the nominating and corporate governance committee are expected to be Mary Thistle, Kathleen LaPorte, and Diyong Xu. Mary Thistle is expected be the chair of the nominating and corporate governance committee. Homology and Q32 believe that, after the completion of the Merger, the composition of the nominating and corporate governance committee will meet the requirements for independence under, and the functioning of such nominating and corporate governance committee will comply with, any applicable requirements of the rules and regulations of Nasdaq.

Research and Development Committee

The combined company's research and development committee will assist the combined company's board of directors with oversight of the combined company's research and development activities. Among other matters, the research and development committee's responsibilities include:

- reviewing, evaluating, and advising the combined company's board of directors and management regarding the long-term strategic goals and objectives and the quality and direction of the combined company's research and development programs;
- monitoring and evaluating trends in research and development, and recommending to the combined company's board of directors and management emerging technologies for building the combined company's technological strength;
- regularly reviewing the combined company's research and development pipeline; and
- assisting the combined company's board of directors with its oversight responsibility for enterprise risk management in areas affecting the combined company's research and development.

The members of the research and development committee are expected to be Bill Lundberg, Arthur Tzianabos and David Grayzel. Bill Lundberg is expected to be the chair of the research and development committee.

Compensation Committee Interlocks and Insider Participation

Each member of the compensation committee will be a "non-employee" director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act and independent within the meaning of the independent director guidelines of Nasdaq. None of the proposed combined company's executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers who is proposed to serve on the combined company's board of directors or compensation committee following the completion of the Merger.

Non-Employee Director Compensation

Prior to the Merger, Q32 did not have a formal policy to provide any cash or equity compensation to its non-employee directors for their service on its board of directors or committees of its board of directors, nor did any non-employee director receive any compensation for serving on Q32's board of directors, except for Mark Iwicki who received an annual payment of $50,000, and Kathleen LaPorte and Bill Lundberg, who each received an annual payment of $40,000.

In connection with closing of the Merger, it is expected that the combined company will provide compensation to non-employee directors pursuant to a new non-employee director compensation policy that is expected to be adopted post-closing.

SELECTED HISTORICAL CONSOLIDATED FINANCIAL DATA

Selected Historical Consolidated Financial Data of Homology

The following tables summarize Homology's consolidated financial data. The consolidated statement of operations data for the years ended December 31, 2022 and 2021 and the consolidated balance sheet data as of December 31, 2022 and 2021 have been derived from the audited consolidated financial statements included elsewhere in this proxy statement/prospectus. The consolidated statement of operations data for the nine months ended September 30, 2023 and 2022 and the consolidated balance sheet data as of September 30, 2023 have been derived from the unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus. You should read the following selected consolidated financial data together with "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" and Homology's financial statements and the related notes included elsewhere in this proxy statement/prospectus. Homology's historical results are not necessarily indicative of results that should be expected in any future period and Homology's results for the interim period are not necessarily indicative of the results that should be expected for the full year ending December 31, 2023.

	Nine-Months Ended September 30,		Year Ended December 31,	
	2023	2022	2022	2021
	(in thousands, except share and per share data)			
Collaboration revenue	$ 1,156	$ 2,406	$ 3,208	$ 33,971
Operating expenses:				
Research and development	60,489	71,202	98,351	93,085
General and administrative	23,355	29,991	38,138	36,835
Restructuring and other charges	6,640	—	—	—
Total operating expenses	90,484	101,193	136,489	129,920
Loss from operations	(89,328)	(98,787)	(133,281)	(95,949)
Gain on sale of business	—	131,249	131,249	—
Interest income	4,403	1,775	3,230	185
Total other income	4,403	133,024	134,479	185
Income (loss) before income taxes	(84,925)	34,237	1,198	(95,764)
Provision for income taxes	—	(816)	(715)	—
Loss from equity method investment	(11,917)	(4,131)	(5,488)	—
Net income (loss)	$ (96,842)	$ 29,290	$ (5,005)	$ (95,764)
Net income (loss)per share—basic	$ (1.68)	$ 0.51	$ (0.09)	$ (1.73)
Net income (loss)per share—diluted	$ (1.68)	$ 0.51	$ (0.09)	$ (1.73)
Weighted-average common shares outstanding—basic	57,788,755	57,372,399	57,399,762	55,283,318
Weighted-average common shares outstanding—diluted	57,788,755	57,901,298	57,399,762	55,283,318

	As of September 30	As of December 31,	
	2023	2022	2021
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 29,111	$ 33,986	$ 108,382
Short-term investments	74,187	141,040	47,491
Assets held for sale	314	—	28,907
Working capital (1)	81,343	158,439	174,683
Total assets	140,063	228,470	211,721
Total liabilities	51,852	50,492	42,070
Accumulated deficit	(525,979)	(429,137)	(424,132)
Stockholders' equity	$ 88,211	$ 177,978	$ 169,651

(1) Working capital is defined as current assets less current liabilities

Selected Historical Consolidated Financial Data of Q32

The following tables summarize Q32's consolidated financial data. The consolidated statement of operations data for the years ended December 31, 2022 and 2021 and the consolidated balance sheet data as of December 31, 2022 and 2021 have been derived from Q32's audited consolidated financial statements included elsewhere in this proxy statement/prospectus. The consolidated statement of operations data for the nine months ended September 30, 2023 and 2022 and the consolidated balance sheet data as of September 30, 2023 have been derived from Q32's unaudited condensed consolidated financial statements included elsewhere in this proxy statement/prospectus. You should read the following selected consolidated financial data together with "*Q32 Management's Discussion and Analysis of Financial Condition and Results of Operations*" and Q32's consolidated financial statements and the related notes included elsewhere in this proxy statement/prospectus. Q32's historical results are not necessarily indicative of results that should be expected in any future period and Q32's results for the interim period are not necessarily indicative of the results that should be expected for the full year ending December 31, 2023.

	Nine Months Ended September 30,		Year Ended December 31,	
	2023	2022	2022	2021
		(in thousands, except share and per share data)		
Collaboration arrangement revenue	$ 8,011	$ 2,871	$ 6,651	$ —
Operating expenses:				
Research and development	23,390	26,624	35,814	29,929
General and administrative	7,067	7,561	10,062	6,764
Total operating expenses	30,457	34,185	45,876	36,693
Loss from operations	(22,446)	(31,314)	(39,225)	(36,693)
Change in fair value of convertible notes	(4,992)	(997)	(2,402)	—
Other income (expense), net	827	(765)	(1,120)	(324)
Total other income (expense), net	(4,165)	(1,762)	(3,522)	(324)
Loss before provision for income taxes	(26,611)	(33,076)	(42,747)	(37,017)
Provision for income taxes	(65)	(45)	(62)	(547)
Net loss and comprehensive loss	(26,676)	(33,121)	(42,809)	(37,564)
Net loss attributable to common stockholders—basic and diluted	$ (3.70)	$ (4.74)	$ (6.09)	$ (5.81)
Weighted-average common shares—basic and diluted	7,217,158	6,987,071	7,025,420	6,470,930

	As of September 30	As of December 31,	
	2023	2022	2021
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 36,256	$ 43,893	$ 32,247
Working capital (1)	(32,737)	(11,012)	26,782
Total assets	53,769	61,774	35,151
Total liabilities	98,775	81,041	12,916
Convertible preferred stock	111,445	111,445	111,445
Accumulated deficit	(160,014)	(133,338)	(90,529)
Stockholders' deficit	$ (156,451)	$(130,712)	$ (89,210)

(1) Working capital is defined as current assets less current liabilities

SUMMARY OF UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL DATA

Selected Unaudited Pro Forma Condensed Combined Financial Data of Homology and Q32

The following unaudited pro forma condensed combined financial information was prepared based on the expectation that the Merger will be treated as a reverse recapitalization in accordance with U.S. generally accepted accounting principles, or GAAP. For accounting purposes, Q32 is considered to be completing an equity financing through the acquisition of Homology in the Merger. This determination is based on the expectations that, immediately following the Merger: (i) Q32's equity holders will own a substantial majority of the voting rights in the combined organization, (ii) Q32 will designate a majority (seven of nine) of the initial board of directors of the combined organization, (iii) Q32's senior management will hold all positions in the senior management of the combined organization and no employees from Homology will be retained and (iv) Homology primarily holds non-operating assets and the purpose of the transaction was to obtain additional capital to fund the operations of Q32.

Accordingly, for accounting purposes: (i) the Merger will be treated as the equivalent of Q32 issuing stock to acquire primarily cash and cash equivalents, short-term investments, and other non-operating assets, (ii) the net assets of Homology will be recorded based upon the fair values in the financial statements at the time of closing, which are primarily comprised of cash, cash equivalents, short-term investments and other non-operating assets and therefore expected to approximate the historical carrying value of the assets and (iii) the reported historical operating results of the combined company prior to the Merger will be those of Q32.

The unaudited pro forma condensed combined balance sheet assumes that Q32's Pre-Closing Financing and the Merger were consummated as of September 30, 2023 and combines the historical balance sheets of Homology and Q32 as of such date. The unaudited pro forma condensed combined statement of operations for the year ended December 31, 2022 and the nine months ended September 30, 2023 assumes that Q32's pre-closing financing and the merger were consummated as of January 1, 2022 and combines the historical results of Homology and Q32 for the respective periods presented.

The selected unaudited pro forma condensed combined financial data are presented for illustrative purposes only and are not necessarily indicative of the combined financial position or results of operations of future periods or the results that actually would have been realized had the entities been a single entity during these periods. The selected unaudited pro forma condensed combined financial data for the year ended December 31, 2022 and as of and for the nine months ended September 30, 2023 are derived from the unaudited pro forma condensed combined financial information and should be read in conjunction with that information. For more information, please see the section entitled "*Unaudited Pro Forma Condensed Combined Financial Information*" in this proxy statement/ prospectus.

Selected Unaudited Pro Forma Condensed Combined Statements of Operations Data

	Nine Months Ended September 30, 2023	Year Ended December 31, 2022
	(in thousands, except share and per share data)	
Collaboration arrangement revenue	$ 9,167	$ 9,859
Research and development expense	83,879	134,165
General and administrative expense	30,422	56,400
Restructuring and other charges	6,640	—
Other income/(expense), net	5,230	147,689
Provision for income taxes	(65)	(777)
Loss on equity method investment	(11,917)	(5,488)
Loss from operations	(118,526)	(39,282)
Net loss attributable to common stockholders—basis and diluted	(118,526)	(39,282)
Net loss per share attributable to common stockholders—basic and diluted	$ (0.54)	$ (0.18)

Selected Unaudited Pro Forma Condensed Combined Balance Sheet Data

	As of September 30, 2023
Consolidated Balance Sheet Data:	
Cash and cash equivalents	$ 107,367
Short-term investments	74,187
Working capital, net	108,060
Total assets	235,092
Total liabilities	146,390
Accumulated deficit	(146,489)
Total stockholders' deficit	$ 88,702

UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

The following unaudited pro forma condensed combined financial statements are based on the Q32 Bio Inc.'s historical consolidated financial statements and Homology Medicine Inc.'s historical consolidated financial statements as adjusted to give effect to the merger of the companies, accounted for as a reverse recapitalization, and to the issuance of shares in the Q32 Pre-Closing Financing. The unaudited pro forma condensed combined financial information does not give effect to the proposed Reverse Stock Split because the Reverse Stock Split is not final.

The Merger

On November 16, 2023, Q32 Bio Inc's ("Q32") entered into an Agreement and Plan of Merger and Reorganization (the "Merger Agreement") with Homology, Inc. ("Homology") and Kenobi Merger Sub, Inc. a wholly owned subsidiary of Homology ("Merger Sub"). Pursuant to the Merger Agreement and subject to the satisfaction or waiver of the conditions therein, Merger Sub will merge with and into Q32, with Q32 continuing as the surviving company and as a wholly owned subsidiary of Homology (the "Merger"). If the Merger is completed, the business of Q32 will continue as the business of the combined company. The Merger is intended to qualify for federal income tax purposes as a tax-free reorganization under the provisions of Section 368(a) of the Internal Revenue Code of 1986, as amended.

Subject to the terms and conditions of the Merger Agreement, at the effective time of the Merger (the "Effective Time"), each then outstanding share of Q32 common stock (including shares of common stock issued upon conversion of Q32 preferred stock, conversion of Q32 convertible notes and shares of Q32 common stock issued in the Q32 pre-closing financing (as defined below) will be converted into the right to receive a number of shares of Homology's common stock (ignoring rounding of fractional shares) calculated in accordance with the Merger Agreement (the "exchange ratio").

At the Effective Time, Homology will assume outstanding and unexercised options to purchase shares of Q32 common stock, and in connection with the Merger they will be converted into options to purchase Homology Common Stock based on the exchange ratio formula in the Merger Agreement. At the Effective Time, Homology will assume outstanding and unexercised warrants to purchase shares of Q32 common stock, and in connection with the Merger they will be converted into warrants to purchase Homology common stock based on the exchange ratio formula in the Merger Agreement.

Immediately prior to the Effective Time, Q32 will cause the outstanding principal and accrued but unpaid interest on the Q32 convertible notes to be converted into shares of Q32 common stock. In addition, the Q32 preferred stock will be converted into Q32 common stock immediately prior to the Effective Time.

At the Effective Time, each person who, as of immediately prior to the Effective Time, was a stockholder of record of Homology or had the right to receive Homology's common stock will be entitled to receive a contractual contingent value right ("CVR") issued by Homology subject to and in accordance with the terms and conditions of a Contingent Value Rights Agreement between Homology, the holder's representative and the rights agent (the "CVR Agreement"), representing the contractual right to receive consideration from the post-closing combined company upon the receipt of certain proceeds from a disposition of Homology's pre-merger assets, calculated in accordance with the CVR Agreement. The unaudited pro forma condensed combined balance sheet includes $14.3 million of contingent consideration with respect to the CVRs.

The Merger is expected to be treated as a reverse recapitalization in accordance with GAAP because on the effective date of the Merger, the pre-combination assets of Homology are expected to be primarily cash and cash equivalents, short-term investments and other non-operating assets. Any in-process research and development assets potentially remaining as of the combination would have de minimis value when compared to the cash, cash equivalents and short-term investments obtained through the Merger.

Immediately after the consummation of the Merger, based on the estimated exchange ratio as described in this proxy statement/prospectus, Q32 securityholders would own approximately 75% of the Homology common stock as defined in the Merger Agreement, and Homology securityholders would own approximately 25% of the Homology common stock as defined in the Merger Agreement, after giving effect to the Q32 pre-closing financing, and subject to adjustment of the exchange ratio as set forth in the Merger Agreement. Under certain circumstances further described in the Merger Agreement, the ownership percentages are subject to adjustment to the extent that Homology's net cash as of the closing, as defined in the Merger Agreement ("Net Cash") is less than $59.5 million or greater than $60.5 million and to the extent there are any changes to the amount of the Q32 Pre-Closing Financing (as defined below).

The percentage ownership of the combined company was derived using a stipulated value for Q32 of approximately $237.0 million, inclusive of the Q32 Pre-Closing Financing, and a stipulated value for Homology of approximately $80.0 million. The valuation of Homology was determined based on a projected net cash, as defined in the Merger Agreement, of approximately $60.0 million at a determination date prior to the closing of the Merger, but subject to adjustment, plus an additional $20.0 million of equity value. The value from any future monetization of Homology operating assets, including fixed assets, intellectual property, and the equity method investment, will be delivered to legacy Homology equity holders via a cash dividend as stipulated in the CVR. The fair value of consideration transferred is not indicative of the combined entities' enterprise value upon consummation of the Merger.

Because, among other things, the number of shares of Homology common stock issuable to Q32's securityholders is determined based on Homology's net cash balance on the business day prior to the anticipated closing date of the merger, Q32 securityholders cannot be certain of the exact number of shares that will be issued to (or reserved for issuance to) Q32 stockholders. The assumed exchange ratio referenced above is an estimate only and the final exchange ratio will be determined pursuant to a formula described in detail in the Merger Agreement included elsewhere in this proxy statement/prospectus.

The Q32 Pre-Closing Financing

In connection with the Merger Agreement, certain investors have entered into a subscription agreement with Q32 to purchase shares of Q32 common stock for an aggregate purchase price of approximately $42.0 million (the "Q32 Pre-Closing Financing"). The Q32 Pre-Closing Financing is contingent on and will occur prior to the closing of the merger, subject to customary closing conditions. Shares of the Q32 common stock issued pursuant to the Q32 Pre Closing Financing will be converted into shares of Homology common stock in accordance with the exchange ratio at the Effective Time.

The unaudited pro forma condensed combined balance sheet assumes that the Q32 Pre-Closing Financing, and the Merger were consummated as of September 30, 2023 and combines the historical balance sheets of Homology and Q32 as of such date. The unaudited pro forma condensed combined statement of operations for the year ended December 31, 2022 and the nine months ended September 30, 2023 assumes that the Q32 Pre-Closing Financing and the Merger were consummated as of January 1, 2022 and combines the historical results of Homology and Q32 for the respective periods presented.

The selected unaudited pro forma condensed combined financial data are presented for illustrative purposes only and are not necessarily indicative of the combined financial position or results of operations of future periods or the results that actually would have been realized had the entities been a single entity during these periods.

The unaudited pro forma condensed combined financial information is based on the assumptions and adjustments that are described in the accompanying notes. The accounting for the Merger requires the final calculation of Homology's net cash. Accordingly, the pro forma adjustments are preliminary, subject to further revision as additional information becomes available and additional analyses are performed and have been made

solely for the purpose of providing unaudited pro forma condensed combined financial information. Differences between these preliminary estimates and the final accounting, expected to be completed after the closing, will occur and these differences could have a material impact on the accompanying unaudited pro forma condensed combined financial information and the combined organization's future results of operations and financial position.

The unaudited pro forma condensed combined financial information does not give effect to the potential impact of current financial conditions, regulatory matters, operating efficiencies or other savings or expenses that may be associated with the integration of the two companies. The unaudited pro forma condensed combined financial information is not necessarily indicative of the financial position or results of operations in future periods or the results that actually would have been realized had Homology and Q32 been a combined organization during the specified periods. The actual results reported in periods following the merger may differ significantly from those reflected in the unaudited pro forma condensed combined financial information presented herein for a number of reasons, including, but not limited to, differences in the assumptions used to prepare this pro forma financial information.

The unaudited pro forma condensed combined financial information, including the notes thereto, should be read in combination with the separate historical financial statements of Homology and Q32, and each company's respective Management's Discussion and Analysis of Financial Condition and Results of Operations included elsewhere in this proxy statement/prospectus.

Accounting rules require evaluation of certain assumptions, estimates, or determination of financial statement classifications. The accounting policies of Homology may materially vary from those of Q32. During preparation of the unaudited pro forma condensed combined financial information, management has performed a preliminary analysis and is not aware of any material differences, and accordingly, this unaudited pro forma condensed combined financial information assumes no material differences in accounting policies. Following the closing, management will conduct a final review of Homology's accounting policies in order to determine if differences in accounting policies require adjustment or reclassification of Homology's results of operations or reclassification of assets or liabilities to conform to Q32's accounting policies and classifications. As a result of this review, management may identify differences that, when conformed, could have a material impact on these unaudited pro forma condensed combined financial statements.

Unaudited Pro Forma Condensed Combined Balance Sheet
September 30, 2023
(in thousands)

	Q32	Homology	Q32 Pre-closing Financing Adjustments	Pro Forma Merger Adjustments	Notes (See Note 4)	Pro Forma Combined
Assets						
Current assets:						
Cash and cash equivalents	$ 36,256	$ 29,111	$ 42,000	$ —	**A**	$ 107,367
Short-term investments	—	74,187	—	—		74,187
Assets held for sale	—	314	—	—		314
Prepaid expenses and other current assets	2,845	3,023	—	(740)	**G**	5,128
Total current assets	39,101	106,635	42,000	(740)		186,996
Restricted cash	5,647	—	—	—		5,647
Equity method investment	—	13,957	—	—		13,957
Property and equipment, net	1,906	—	—	—		1,906
Right-of-use asset, operating leases	6,438	19,471	—	—		25,909
Other non-current assets	677	—	—	—		677
Total assets	$ 53,769	$ 140,063	$ 42,000	$ (740)		$ 235,092
Liabilities, Convertible Preferred Stock and Stockholders' Deficit						
Current liabilities:						
Accounts payable	$ 1,829	$ 7,803	$ —	$ —		$ 9,632
Accrued expenses and other current liabilities	7,399	15,711	—	19,200	**D, E, F,G**	42,310
Convertible notes	37,394	—	—	(37,394)	**B**	—
Venture debt, current portion	418	—	—	—		418
Operating lease liabilities, current portion	—	1,778	—	—		1,778
Deferred revenue, current portion	24,798	—	—	—		24,798
Total current liabilities	71,838	25,292	—	(18,194)		78,936
Deferred revenue, net of current portion	15,540	—	—	—		15,540
Operating lease liabilities, net of current portion	6,386	26,560	—	—		32,946
CVR derivative liability	—	—	—	13,957	**H**	13,957
Venture debt	5,011	—	—	—		5,011
Total liabilities	98,775	51,852		(4,237)		146,390
Series A convertible preferred stock	47,458	—	—	(47,458)	**C**	—
Series A-1 convertible preferred stock	4,132	—	—	(4,132)	**C**	—
Series B convertible preferred stock	59,855	—	—	(59,855)	**C**	—
Total convertible preferred stock	111,445	—	—	(111,445)		—
Stockholders' deficit:						
Preferred stock	—	—	—	—		—
Common stock	1	6	4	12	**K**	23
Additional paid-in-capital	3,562	614,220	41,996	(424,610)	**K**	235,168
Accumulated other comprehensive loss	—	(36)	—	36	**K**	—
Accumulated deficit	(160,014)	(525,979)	—	539,504	**K**	(146,489)
Total stockholders' deficit	(156,451)	88,211	42,000	114,942		88,702
Total liabilities, convertible preferred stock and stockholders' deficit	$ 53,769	$ 140,063	$ 42,000	$ (740)		$ 235,092

The accompanying notes are an integral part of this pro forma condensed financial information.

Unaudited Pro Forma Condensed Combined Statement of Operations
For the Nine Months Ended September 30, 2023
(in thousands, except share and per share amounts)

	Q32	Homology	Q32 Pre-closing Financing Adjustments	Pro Forma Merger Adjustments	Notes	Pro Forma Combined
Collaboration arrangement revenue	$ 8,011	$ 1,156	$ —	$ —		$ 9,167
Operating expense:						
Research and development	23,390	60,489	—	—		83,879
General and administrative	7,067	23,355	—	—		30,422
Restructuring and other charges	—	6,640	—	—		6,640
Total operating expense	30,457	90,484	—	—		120,941
Loss from operations	(22,446)	(89,328)	—	—		(111,774)
Change in fair value of convertible notes	(4,992)	—	—	4,992	J	—
Other income (expense), net	827	4,403	—	—		5,230
Total other income (expense), net	(4,165)	4,403	—	4,992		5,230
Loss before provision for income taxes	(26,611)	(84,925)	—	4,992		(106,544)
Provision for income taxes	(65)	—	—	—		(65)
Loss from equity method investment	—	(11,917)	—	—		(11,917)
Net loss and comprehensive loss	$ (26,676)	$ (96,842)	$ —	$ 4,992		$ (118,526)
Net loss attributable to common stockholders'—basic and diluted	$ (3.70)	$ (1.68)			L	$ (0.54)
Weighted-average common shares—basic and diluted	7,217,158	57,788,755			L	217,641,518

The accompanying notes are an integral part of this pro forma condensed financial information.

Unaudited Pro Forma Condensed Combined Statement of Operations
For the Year Ended December 31, 2022
(in thousands, except share and per share amounts)

	Q32	Homology	Q32 Pre-closing Financing Adjustments	Pro Forma Merger Adjustments	Notes	Pro Forma Combined
Collaboration arrangement revenue	$ 6,651	$ 3,208	$ —	$ —		$ 9,859
Operating expense:						
Research and development	35,814	98,351	—	—		134,165
General and administrative	10,062	38,138	—	8,200	F, G	56,400
Total operating expense	45,876	136,489	—	8,200		190,565
Loss from operations	(39,225)	(133,281)	—	(8,200)		(180,706)
Other income (expense), net						
Gain on sale of business	—	131,249	—	—		131,249
Change in fair value of convertible notes	(2,402)	—	—	(4,992)	J	(7,394)
Gain on conversion of convertible notes	—	—		21,724	B	21,724
Other income (expense), net	(1,120)	3,230	—	—		2,110
Total other income (expense), net	(3,522)	134,479	—	16,732		147,689
Income (loss) before provision for income taxes	(42,747)	1,198	—	8,532		(33,017)
Provision for income taxes	(62)	(715)		—		(777)
Loss from equity method investment	—	(5,488)	—	—		(5,488)
Net loss and comprehensive loss	$ (42,809)	$ (5,005)	$ —	$ 8,532		$ (39,282)
Net loss attributable to common stockholders'—basic and diluted	$ (6.09)	$ (0.09)			L	$ (0.18)
Weighted-average common shares—basic and diluted	7,025,420	57,399,762			L	217,472,942

The accompanying notes are an integral part of this pro forma condensed financial information.

Notes to the Unaudited Pro Forma Condensed Combined Financial Information

All amounts below are in thousands, unless specifically noted otherwise, except share and per share amounts.

1. Description of Transaction

Upon the Effective Time, all shares of Q32 common stock outstanding immediately prior to the Effective Time, after giving effect to the preferred stock conversion, convertible notes conversion, and the Q32 Pre-Closing Financing, will be converted into the right to receive approximately 158,828,430 shares of Homology's common stock in the aggregate, based on an assumed exchange ratio of 0.88, which has not been adjusted to reflect the proposed Reverse Stock Split because the Reverse Stock Split is not final and is subject to certain adjustments, including Homology's final Net Cash at closing. This exchange ratio is an estimate only and the final exchange ratio at closing will be determined pursuant to a formula described in more detail in the Merger Agreement.

The following table presents the ownership of the combined company by Homology and Q32 securityholders assuming Homology's final Net Cash at closing is $60.0 million and a sensitivity analysis of a hypothetical increase or decrease of 10% in Homology's final Net Cash at closing assuming no changes in the estimated price of Homology common stock or the assumptions surrounding the Q32 Pre-Closing Financing.

	Homology Final Net Cash	Homology Ownership	Q32 Ownership
	(in millions)	(%)	(%)
As presented	$ 60.0	*25.2*	*74.8*
10% increase	$ 66.0	26.6	73.4
10% decrease	$ 54.0	23.8	76.2

Q32 estimates that the aggregate value of the consideration to be paid in the merger will be approximately $50.0 million. The fair value of consideration transferred is based on the number of common shares Homology stockholders will own of the combined company upon consummation of the merger, multiplied by the closing price or fair value of Homology common stock on December 29, 2023, the most recent practicable date prior to the filing of this registration statement, as well as the fair value of outstanding options to purchase Homology common stock and the fair value of the CVR. The number and value of the shares of Homology common stock and options to purchase Homology common stock to be held by Homology stockholders to be outstanding following the Merger and the fair value of the CVRs will not be determined until the completion of the Merger and therefore, the final aggregate value of the consideration paid in the Merger may be more or less than $50.0 million. The fair value of consideration transferred is not indicative of the combined entities enterprise value upon consummation of the Merger. As the Merger will be accounted for as a reverse recapitalization, any difference between the consideration to be transferred in the merger and the fair value of the net assets acquired will be recorded as an adjustment to additional paid-in capital.

The following table presents the aggregate value of the consideration to be paid in the merger based on the closing price of Homology common stock of $0.61 on December 29, 2023 and a sensitivity analysis of a hypothetical increase or decrease of 10% in the estimated price of Homology common stock.

	Homology Stock Price	Total Estimated Consideration
		(in thousands)
As presented	$ 0.61	$ 49,668
10% increase	$ 0.67	$ 53,214
10% decrease	$ 0.56	$ 46,727

Consummation of the merger is subject to certain closing conditions, including, among other things, approval by the Homology stockholders and the Q32 stockholders.

2. Basis of Pro Forma Presentation

The unaudited pro forma condensed combined financial information does not give effect to the proposed Reverse Stock Split because the Reverse Stock Split has not yet been determined.

The unaudited pro forma condensed combined financial information has been prepared in accordance with SEC Regulation S-X Article 11. The unaudited pro forma condensed combined statements of operations for the year ended December 31, 2022 and the nine months ended September 30, 2023, give effect to the Q32 Pre-Closing Financing and Merger as if they had been consummated on January 1, 2022. The unaudited pro forma condensed combined balance sheet as of September 30, 2023 gives effect to the Q32 Pre-Closing Financing and the Merger as if they had been consummated on September 30, 2023.

For accounting purposes, Q32 is considered to be the acquiring company and the Merger is expected to be accounted for as a reverse recapitalization of Q32 because on the Merger date, the pre-combination assets of Homology are expected to be primarily cash, cash equivalents, short-term investments and other non-operating assets.

For purposes of these pro forma financial statements, the total estimated purchase price is summarized as follows (in thousands, except share and per share amounts):

Estimated number of shares of the combined company to be owned by Homology stockholders (i)	58,017,412
Multiplied by the assumed price per share of Homology stock (ii)	$ 0.61
Total	35,391
Estimated fair value of assumed Homology equity awards based on pre-combination service (iii)	320
Estimated fair value of the contingent value right (iv)	13,957
Total estimated purchase price	$ 49,668

i. Reflects the number of shares of common stock of the combined company that Homology equity holders would own as of the closing pursuant to the Merger Agreement. This amount is calculated, for purposes of this unaudited pro forma condensed combined financial information, based on shares of Homology common stock outstanding as of December 29, 2023. The estimated number of shares does not reflect the impact of the reverse stock split that is expected to be effective prior to consummation of the merger because the reverse stock split is not final.

ii. Reflects the price per share of Homology common stock, which is the closing trading price of Homology common stock outstanding as of December 29, 2023.

iii. The estimated purchase price includes the estimated acquisition-date fair value of the assumed Homology equity awards attributable to pre-combination service (which amount is determined based on the closing trading price of Homology common stock on December 29, 2023, the number of Homology equity awards outstanding on this date, and the period of service provided by the holders of the awards prior to the merger closing date). The following table presents on a weighted average basis, the assumptions used in the Black-Scholes option-pricing model to determine the estimated acquisition date fair value of the assumed Homology equity awards:

Expected term (in years)	1
Volatility	64.52%
Risk free interest rate	5.23%
Dividend yield	—

iv. The estimated fair value of the CVR is $14.0 million, which is based on the estimated fair value of Homology's equity method investment in OXB (US) LLC as of September 30, 2023. Refer to Note 5 to unaudited financial statements included in Homology's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023 for a description of the method used to estimate the fair value of the investment. The estimated fair value of the CVR does not attribute any value to the in-process research and development assets subject to the CVR, based on marketing efforts to date.

The actual purchase consideration for the net assets of Homology will vary based on the Homology share price at closing and the fair value of the CVR; however, any difference between the consideration transferred and the fair value of the net assets of Homology following determination of the actual purchase consideration for Homology will be reflected as an adjustment to additional paid-in capital. The estimated purchase consideration reflected in these unaudited pro forma condensed combined financial information does not purport to represent what the actual purchase consideration will be when the Merger is completed. The actual purchase price will fluctuate until the Effective Time of the Merger.

Under reverse recapitalization accounting, the subsequent financial statements of Q32 will reflect the operations of the acquirer for accounting purposes together with a deemed issuance of shares, equivalent to the shares held by the former stockholders of the legal acquirer and a recapitalization of the equity of the accounting acquirer. The accompanying unaudited pro forma condensed combined financial information is derived from the historical financial statements of Homology and Q32, and include adjustments to give pro forma effect to reflect the accounting for the transaction in accordance with U.S. GAAP. The historical financial statements of Q32 will become the historical financial statements of the combined company.

Q32 and Homology may incur significant costs associated with integrating the operations of Q32 and Homology after the Merger is completed. The unaudited pro forma condensed combined financial information does not reflect the costs of any integration activities or benefits that may result from realization of future cost savings from operating efficiencies which may result from the Merger.

3. Shares of Homology Common Stock Issued to Q32 Stockholders upon Closing of the Merger

Prior to the Merger, all Convertible Notes and outstanding shares of Q32 convertible preferred stock are expected to convert into Q32 common stock, which will be exchanged for shares of Homology common stock based on the exchange ratio determined in accordance with the Merger Agreement. The estimated exchange ratio for purposes of the unaudited pro forma condensed combined financial information was derived using a stipulated value for Q32 of approximately $237.0 million (including the Q32 pre-closing financing disclosed above) and for Homology of approximately $80.0 million. The estimated number of shares of common stock that Homology expects to issue to Q32's common stockholders, preferred stockholders and convertible note holders as of December 29, 2023 (ignoring rounding of fractional shares) is determined as follows:

Shares of Q32 common stock outstanding	7,258,304
Estimated shares of Q32's common stock to be issued upon consummation of the Q32 Concurrent Financing	35,032,111
Shares of Q32 common stock to be issued upon conversion of Q32 preferred stock	108,818,415
Shares of Q32 common stock to be issued upon conversion of Q32 convertible notes	29,542,251
Total	180,651,081
Exchange ratio	0.88
Estimated shares of Homology common stock to be issued to Q32 shareholders upon closing of the Merger	158,828,430

The exchange ratio and estimated shares of Homology common stock issued to Q32's securityholders have not been adjusted to give effect to the proposed Reverse Stock Split because the Reverse Stock Split is not final.

4. Pro Forma Adjustments

Adjustments included in the column under the heading "Q32 Pre-Closing Financing Adjustments" are primarily based on information contained within the subscription agreement for the Q32 Pre-Closing Financing and adjustments included in the column under the heading "Pro Forma Merger Adjustments" are primarily based on information contained within the Merger Agreement. Further analysis will be performed after the completion of the Merger to confirm these estimates.

Both Q32 and Homology have a history of generating net operating losses and maintain a full valuation allowance against their net deferred tax assets. For the year ended December 31, 2022, Homology recorded an income tax provision of $0.7 million. Q32 has recorded a tax provision of $65 thousand for the nine months ended September 30, 2023 and $62 thousand for the year ended December 31, 2022. Management of both entities have not identified any changes to the income tax positions due to the merger that would result in an incremental tax expense or benefit. Accordingly, no tax related adjustments have been reflected for the pro forma adjustments.

The pro forma adjustments, based on preliminary estimates that could change materially as additional information is obtained, are as follows:

A. The Q32 Pre-Closing Financing is contingent on the Merger and is expected to close immediately prior to the consummation of the Merger. The adjustment reflects cash proceeds of $42.0 million from the sale and issuance of 35,032,111 shares of Q32 common stock at a purchase price of $1.20 per share pursuant to the subscription agreement entered into in connection with the Q32 Pre-Closing Financing. The issuance of common stock related to this Pre-Closing Financing results in an increase of $4 thousand to common stock and an increase of $42.0 million to additional paid-in-capital in the unaudited pro forma condensed combined balance sheet. The potential use of proceeds from the Q32 pre-closing financing has not yet been finalized, and as a result, for the purposes of the unaudited pro forma condensed combined statement of operations, no adjustments were made to reflect interest income from the potential investment of the proceeds or any other use of proceeds from the Q32 pre-closing financing.

B. As a condition of the closing, Q32 is required to convert its outstanding convertible notes plus accrued interest into shares of common stock at 90% of the purchase price of the mandatory conversion event. For the purposes of the unaudited pro forma condensed combined statements of operations, Q32's conversion of its convertible notes is reflected as if it occurred on January 1, 2022, resulting in the issuance of 29,542,251 shares of Q32 common stock. As the convertible notes are recorded at fair value, a gain of $21.7 million on conversion of convertible stock reflected in the unaudited pro forma condensed combined statement of operation for the year ended December 31, 2022. The conversion of the Q32 convertible notes into shares of Q32 common stock results in an increase of $1 thousand to Common stock and an increase of $15.7 million to additional paid-in-capital in the unaudited pro forma condensed combined balance sheet.

C. Immediately prior to completing the Merger, all classes of convertible preferred stock of Q32 will be converted to Q32 common stock. The Series A convertible preferred stock is expected to convert to 47,628,788 shares of Q32 common stock, the Series A-1 convertible preferred stock is expected convert to 6,500,000 shares of Q32 common stock and the Series B convertible preferred stock is expected to convert to 54,689,627 shares of Q32 common stock. The conversion of the Q32 preferred stock into shares of Q32 common stock results in an increase of $11 thousand to Common stock and an increase of $111.4 million to additional paid-in-capital in the unaudited pro forma condensed combined balance sheet.

D. To reflect Homology's estimated transaction costs of $4.5 million that were not accrued as of September 30, 2023, consisting of legal and accounting related fees of approximately $2.0 million, and investment banking fees of approximately $2.5 million as an increase to accrued expenses and an increase to accumulated deficit of $4.5 million in the unaudited pro forma condensed combined balance sheet.

E. To reflect Q32's estimated transaction costs of $6.5 million that were not accrued as of September 30, 2023, consisting of legal and accounting related fees of approximately $4.7 million and investment banking fees of approximately $1.8 million as an increase to accrued expenses and a reduction to additional paid-in

capital of $6.5 million in the unaudited pro forma condensed combined balance sheet. As the merger will be accounted for as a reverse recapitalization equivalent to the issuance of equity for the primarily cash and cash equivalents, short-term investments, and other non-operating assets of Homology, these direct and incremental costs are treated as a reduction of the net proceeds received within additional paid-in capital. The adjustments for transaction costs exclude costs related to Q32's ongoing operations as a public company, which will be charged to expense as incurred.

F. Estimated compensation expense of $6.1 million related to change-in-control cash payments, retention and severance payments resulting from pre-existing employment agreements that will be payable in cash in connection with the Merger but were not incurred as of September 30, 2023 is reflected as an increase to accrued expenses and accumulated deficit in the unaudited pro forma condensed combined balance sheet. Homology's compensation costs of $6.1 million are reflected as general and administrative expense in the unaudited pro forma condensed combined statement of operations for the year ended December 31, 2022.

G. To remove Homology's prepaid D&O Insurance policy of $0.8 million as a reduction to prepaid expenses and other current assets and accumulated deficit of $0.8 million in the unaudited pro forma condensed combined balance sheet, and replace it with a $2.1 million D&O tail policy as an increase to accrued expenses and accumulated deficit of $2.1 million in the unaudited pro forma condensed combined balance sheet. Homology's D&O tail policy expense of $2.1 million is reflected as general and administrative expense in the unaudited pro forma condensed combined statement of operations for the year ended December 31, 2022.

H. The estimated fair value of the CVR is $14.0 million, which is based on the estimated fair value of Homology's equity method investment in OXB (US) LLC as of September 30, 2023. Refer to Note 5 to unaudited financial statements included in Homology's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023 for a description of the method used to estimate the fair value of the investment. The estimated fair value of the CVR does not attribute any value to the in-process research and development assets subject to the CVR, based on marketing efforts to date.

I. Homology's historical financial statements were adjusted to give pro forma effect to events in connection with the Merger that include the elimination of Homology's historical common stock, additional paid-in capital and accumulated deficit balances and the capitalization of the fair value of the estimated number of common shares of the combined company to be owned by Homology stockholders.

J. To remove $5.0 million of change in fair value of convertible notes for the nine months ended September 30, 2023 and add it to the year ended December 31, 2022.

K. The impacts of the adjustments from the Merger for the Pre-Closing Financing and pro forma adjustments on the equity accounts are included in the table below.

The amounts of the elimination of Homology's historical equity carrying values within the table above include the impacts of the pro forma adjustments related to pre-merger expenses of Homology. A reconciliation from the amounts of Homology's historical equity carrying values contained within the unaudited pro forma condensed combined balance sheet as of September 30, 2023 is as follows:

	Common								
	Q32		Homology						
(amounts in thousands, except share amounts)	Shares	Amount	Shares	Amount	Additional Paid-In-Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Shareholders' Deficit	Notes
Q32 historical equity carrying values as of September 30, 2023	7,258,304	1	—	—	3,562	(160,014)	—	(156,451)	
Homology historical equity carrying values as of September 30, 2023 (i)	—	—	58,017,412	6	614,220	(525,979)	(36)	88,211	
Combined historical equity carrying values as of September 30, 2023	7,258,304	1	58,017,412	6	617,782	(685,993)	(36)	(68,240)	
Effect of Consummation of Q32 pre-closing financing	35,032,111	4	—	—	41,996	—	—	42,000	A
Total Q32 Pre-closing Financing Adjustments	35,032,111	4	—	—	41,996	—	—	42,000	
Conversion of Q32 convertible notes into Q32 common stock	229,542,251	1	—	—	15,668	21,725	—	37,394	B
Conversion of outstanding Q32 convertible preferred stock into Q32 common stock	108,818,415	11	—	—	111,434	—	—	111,445	C
Stock-based compensation costs recognized by Homology related to acceleration of vesting of equity awards upon closing (ii)	—	—	831,851	1	319	(320)	—	—	
Derecognition of Homology prepaid item being written off (ii)	—	—	—	—	—	(740)	—	(740)	G
Homology transaction costs associated with the transaction	—	—	—	—	—	(4,500)	—	(4,500)	D
Elimination of Homology's historical equity carrying values, after pro forma adjustments	—	—	—	—	(531,575)	531,539	36	—	I
Issuance of CVR	—	—	—	—	(13,957)	—	—	(13,957)	H
Exchange of outstanding Q32's common stock based on the assumed Exchange Ratio for purposes of these pro forma condensed combined financial statements	(180,651,081)	(17)	158,828,430	16	1	—	—	—	
Payment of transaction costs associated with the merger	—	—	—	—	(6,500)	—	—	(6,500)	E
Payment of transaction related insurance costs	—	—	—	—	—	(2,100)	—	(2,100)	G
Payment of change-in-control, retention and severance in connection with the merger	—	—	—	—	—	(6,100)	—	(6,100)	F
Total Pro Forma Merger Adjustments	(42,290,415)	(5)	159,660,281	17	(424,610)	539,504	36	114,942	
Pro Forma Combined	—	—	217,677,693	23	235,168	(146,489)	—	88,702	

(i) Homology shares are as of December 29, 2023.

(ii) Homology shares are as of December 29, 2023. This adjustment reflects the acceleration of Homology share-based compensation and is treated as a precombination expense.

L. The pro forma combined basic and diluted earnings per share have been adjusted to reflect the pro forma net loss for the year ended December 31, 2022 and the nine months ended September 30, 2023. In addition, the weighted average shares outstanding for these periods have been adjusted to give effect to the issuance of Homology's common stock in connection with the Q32 pre-closing financing and the merger as of November 30, 2023. As the combined organization is in a net loss position for both periods presented, any adjustment for potentially dilutive shares would be anti-dilutive, and as such basic and diluted loss per share are the same for both periods presented. The following table presents the calculation of the pro forma weighted average number of common stock outstanding. The estimated number of shares does not reflect the impact of the proposed Reverse Stock Split that is expected to be effected prior to consummation of the merger because the Reverse Stock Split is not final:

	Nine Months Ended September 30, 2023	Year Ended December 31, 2022
Weighted-average Q32 common shares outstanding—basic and diluted	7,217,158	7,025,420
Impact of Q32 pre-closing financing assuming consummation as of January 1, 2022	35,032,111	35,032,111
Impact of Q32 convertible notes assuming conversion as of January 1, 2022	29,542,251	29,542,251
Impact of Q32 convertible preferred stock assuming conversion as of January 1, 2022	108,818,415	108,818,415
Total	180,609,935	180,418,197
Application of exchange ratio to historical Q32 weighted-average shares outstanding	0.88	0.88
Adjusted Q32 weighted-average shares outstanding	158,792,255	158,623,679
Impact of Homology common stock related to stock units that accelerated vesting as of January 1, 2022	341,339	341,339
Impact of common shares issued upon vesting of equity awards for the combined company as of January 1, 2022	490,512	490,512
Weighted-average Homology common shares outstanding—basic and diluted	58,017,412	58,017,412
Pro forma combined weighted-average number of shares of common stock—basic and diluted	217,641,518	217,472,942

Q32 EXECUTIVE AND DIRECTOR COMPENSATION

2023 Director Compensation Table

The following table presents the total compensation for each person who served as a non-employee director of the Q32 board of directors during 2023. Ms. Morrison, Q32's Chief Executive Officer and President did not receive any additional compensation from Q32 for her service on Q32's board of directors. The compensation received by Ms. Morrison as a named executive officer, or NEO, is set forth below in "*Executive Compensation—2023 Summary Compensation Table.*"

Name	Fees Paid or Earned in Cash ($)	Total ($)
Jayson Punwani (1)	—	—
David Grayzel (2)	—	—
Mark Iwicki (3)	50,000	50,000
Kathleen LaPorte (4)	40,000	40,000
Bill Lundberg (5)	40,000	40,000
Isaac Manke (6)	—	—
Diyong Xu (7)	—	—

(1) As of December 31, 2023, Mr. Punwani did not hold any outstanding equity awards.
(2) As of December 31, 2023, Mr. Grayzel did not hold any outstanding equity awards.
(3) As of December 31, 2023, Mr. Iwicki held options to purchase 933,848 shares of Q32's common stock.
(4) As of December 31, 2023, Ms. LaPorte held options to purchase 153,690 shares of Q32's common stock and holds 113,124 shares of common stock.
(5) As of December 31, 2023, Mr. Lundberg held options to purchase 231,875 shares of Q32's common stock and holds 25,000 shares of common stock.
(6) As of December 31, 2023, Mr. Manke did not hold any outstanding equity awards.
(7) As of December 31, 2023, Mr. Xu did not hold any outstanding equity awards.

Narrative to 2023 Director Compensation Table

Q32 does not currently have a formal non-employee director compensation program but has entered into letter agreements with certain of its independent, non-employee directors that provide for quarterly payments of $10,000 for Ms. LaPorte and Mr. Lundberg and $12,500 for Mr. Iwicki. No non-employee director received any equity grants in 2023.

Executive Compensation Prior to the Merger

Unless the context otherwise requires, any reference in this section of this proxy statement/prospectus to "Q32" refers to Q32 and its consolidated subsidiaries prior to the consummation of the Merger and to Q32 and its consolidated subsidiaries following the Merger. As an emerging growth company, Q32 has opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies" as such term is defined in the rules promulgated under the Securities Act, which require compensation disclosure for its principal executive officer and its two other most highly compensated executive officers.

This section discusses the material components of the executive compensation program offered to the executive officers of Q32 who would have been "named executive officers" for 2023 and who will serve as the executive officers of the combined company following the consummation of the Merger. Such executive officers consist of the following persons, referred to herein as our NEOs:

- Jodie Morrison, Q32's Chief Executive Officer and President;

- Jason Campagna, Q32's Chief Medical Officer; and
- Shelia Violette, Q32's Chief Scientific Officer and President of Research.

Each of our NEOs will serve us in the same capacities after the consummation of the Merger.

This discussion may contain forward-looking statements that are based on Q32's current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs that Q32 adopts following the consummation of the Merger could vary significantly from Q32's historical practices and currently planned programs summarized in this discussion.

2023 Summary Compensation Table

The following table presents information regarding the total compensation awarded to, earned by and paid to Q32's NEOs for services during the fiscal year ended December 31, 2023.

Name and Principal Position	Year	Salary ($)(1)	Bonus ($)(2)	Option Awards ($)(3)	All Other Compensation ($)	Total ($)
Jodie Morrison (4)	2023	525,032	327,000	223,275	600	1,075,907
Chief Executive Officer & President	2022	120,353	100,000	1,667,171	150	1,887,674
Jason Campagna	2023	459,680	220,647	—	600	689,927
Chief Medical Officer	2022	442,000	176,800	—	600	619,400
Shelia Violette	2023	416,000	203,330	96,291	600	716,221
Chief Scientific Officer and President of Research						

(1) The amounts in this column represent the total base salaries earned in fiscal year 2022 and 2023.

(2) Amounts in this column represent discretionary annual bonuses earned for performance in fiscal year 2022 and 2023, which were paid in early 2023 and 2024, respectively. For more information regarding the annual bonuses, see "—Narrative Disclosure to Summary Compensation Table—Annual Bonuses" below.

(3) The amounts reported represent the aggregate grant date fair value of the stock option awards granted to our named executive officers during 2022 and 2023, calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the stock option awards reported in this column are set forth in note 10 of Q32's audited financial statements included elsewhere in this proxy statement/prospectus. The amounts reported in this column reflect the accounting cost for these stock option awards and do not correspond to the actual economic value that may be received by Q32's named executive officers upon the exercise of the stock option awards or any sale of the underlying shares of Q32 common stock.

(4) Ms. Morrison commenced part-time employment with Q32 on September 8, 2022 and became a full-time employee on November 1, 2022.

Narrative Disclosure to the 2023 Summary Compensation Table

2023 Base Salaries

Each NEO's base salary is a fixed component of annual compensation for performing specific duties and functions. Base salaries are adjusted from time to time to realign salaries with market levels after taking into account individual responsibilities, performance and experience. As of the end of the fiscal year ended December 31, 2023, the base salaries for Ms. Morrison, Mr. Campagna and Ms. Violette were $545,000, $459,680 and $416,000 respectively.

2023 Annual Bonuses

Each NEO is eligible to earn an annual incentive bonus for each year they are employed by Q32, with the target amount of such bonus opportunity set as a percentage of each NEO's annual base salary and based on

achievement of certain corporate goals. The actual bonus amounts were determined by Q32's Chief Executive Officer (except with respect to her own bonus) and its board of directors, in their absolute discretion. For the fiscal year ended December 31, 2023, the target annual bonuses for Ms. Morrison, Mr. Campagna and Ms. Violette was 50%, 40%, and 40%, respectively.

Equity Incentive Compensation

On December 7, 2017, Q32's board of directors adopted the 2017 Plan. Although Q32 does not have a formal policy with respect to the grant of equity incentive awards to Q32's executive officers, Q32 believes that equity awards provide Q32's executive officers with a strong link to Q32's long-term performance, create an ownership culture and help to align the interests of Q32's executives and Q32's stockholders. In addition, Q32 believes that equity awards with a time-based vesting feature promote executive retention because this feature incentivizes Q32's executive officers to remain in Q32's employment during the applicable vesting period. Accordingly, Q32's board of directors periodically reviews the equity incentive compensation of Q32's NEOs and from time to time may grant equity incentive awards to them. In 2022 and 2023, Q32 granted options to Q32's NEOs with the aggregate grant date fair values set forth in the Summary Compensation Table above.

Perquisites

Q32 generally does not provide perquisites to its employees, other than certain de minimis perquisites available to all of our employees, including its NEOs.

401(k) Plan

Q32 maintains the Q32 Bio Inc. 401(K) Plan, a tax-qualified retirement plan that provides eligible employees, including the NEOs, with an opportunity to save for retirement on a tax-advantaged basis. Plan participants are able to defer eligible compensation subject to applicable annual limits under the Code. Participants pre-tax or Roth contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participants' directions. Participants are immediately and fully vested in their contributions. Q32's 401(k) plan is intended to be qualified under Section 401(a) of the Code with its 401(k) plan's related trust intended to be tax exempt under Section 501(a) of the Code.

Offer Letters with Q32's Named Executive Officers

Q32 has entered into offer letters with each of its NEOs, which set forth the terms and conditions of each executive's employment relationship. The terms of which are described below.

Offer Letter with Ms. Jodie Morrison

Q32 entered into an offer letter with Ms. Morrison, dated September 8, 2022, as amended on October 19, 2023, pursuant to which Q32 employs Ms. Morrison as its Chief Executive Officer and President. Pursuant to her offer letter, Ms. Morrison receives an initial annual base salary of $250,000, which increased to $500,000 effective as of November 1, 2022 in connection with the commencement of her full-time employment and subsequently increased to $545,000 effective as of October 19, 2023 in connection with her amendment to her offer letter. Ms. Morrison is also eligible to receive a target annual bonus of 50% her base salary and is eligible to participate in the employee benefit plans generally available to Q32's employees, subject to the terms of such plans. Pursuant to Ms. Morrison's amendment to her offer letter, she will be entitled to a base salary and target annual bonus adjustment in which such compensation will be adjusted to be no less than the seventy-fifth (75^{th}) percentile for chief executive officers at public biotechnology companies that are similar in size, development stage and location as Q32, as determined by the board of directors in its discretion, subject to Q32 going public, which such adjustment provision is expected to be triggered upon the consummation of the Merger. Finally, Ms. Morrison's offer letter provides that she is eligible for two initial equity grants in the form of stock options, which were issued to Ms. Morrison in fiscal year 2022, with a third grant to be made upon Ms. Morrison

becoming Q32's full-time Chief Executive Officer and, until Q32's public listing (which will be satisfied upon the consummation of the Merger), one or more true-up stock option awards following the consummation of each preferred stock financing and Q32's public listing in which, together with previously granted awards, will represent 5% of Q32's capital stock. Such grants shall not be made in connection with Q32's public listing if such event occurs later than six months following October 19, 2023.

In the event of a "qualifying termination" (as defined in her offer letter), subject to Ms. Morrison's execution of a separation agreement and a general release of claims in favor of Q32 (and, in its sole discretion, subject to a one-year post-employment noncompetition agreement), Ms. Morrison will be entitled to receive: (i) base salary continuation for twelve (12) months following her date of termination; (ii) pro-rated annual target bonus in the amount she would have received in the year of termination (payable on the same schedule as her base salary continuation); and (iii) if Ms. Morrison elects continued COBRA healthcare coverage, continued healthcare coverage in the amount contributed by Q32 for a period of nine (9) months.

In lieu of the severance payments and benefits described in the preceding paragraph, in the event that Ms. Morrison's employment is terminated due to a qualifying termination, on or within twelve (12) months following a "change in control" (as defined in her offer letter), Ms. Morrison will be entitled to receive (i) a lump sum payment equal to base salary continuation for eighteen (18) months following her date of termination; (ii) 100% of the annual target bonus she would have received in the year of termination, payable in lump sum; (iii) if Ms. Morrison elects continued COBRA healthcare coverage, continued healthcare coverage in the amount contributed by Q32 for a period of nine (9) months; and (iv) full acceleration of any unvested time-based equity.

Offer Letter with Mr. Jason Campagna

Q32 entered into an offer letter with Mr. Campagna, dated February 11, 2021, pursuant to which Q32 employs Mr. Campagna as its Chief Medical Officer. Pursuant to his offer letter, Mr. Campagna receives an initial annual base salary of $425,000, which is subject to annual review and periodic adjustment. Mr. Campagna is also eligible to receive a target annual bonus of 40% his base salary and is also eligible to participate in the employee benefit plans generally available to Q32's employees, subject to the terms of such plans. Finally, Mr. Campagna's offer letter provides that he is eligible for two initial equity grants in the form of stock options.

In the event of a termination of Mr. Campagna's employment by Q32 without "cause" or Mr. Campagna resigns for "good reason" (as each term is defined in his offer letter), subject to Mr. Campagna's execution of a separation agreement and a general release of claims in favor of Q32, Mr. Campagna will be entitled to receive (i) base salary continuation for nine (9) months following his date of termination; and (ii) if Mr. Campagna elects continued COBRA healthcare coverage, continued healthcare coverage in the amount contributed by Q32 for a period of six (6) months.

In addition to the severance payments and benefits described in the preceding paragraph, in the event that Mr. Campagna's employment is terminated by Q32 without cause or Mr. Campagna resigns for good reason, in each case, within twelve (12) months following a "sale event" (as defined in the 2017 Plan), Mr. Campagna will also be entitled to receive (i) an additional six (6) months of continued healthcare, resulting in a total of twelve (12) months of continued healthcare; and (ii) full acceleration of the unvested equity awards referenced in his offer letter.

Offer Letter with Ms. Shelia Violette

Q32 entered into an offer letter with Ms. Violette, dated September 8, 2017, pursuant to which Q32 employs Ms. Violette as its Chief Scientific Officer. Pursuant to her offer letter, Ms. Violette receives an initial annual base salary of $300,000, which is subject to annual review and periodic adjustment. Ms. Violette is also eligible to receive a target annual bonus of 30% her base salary and is also eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of such plans. Finally, Ms. Violette's offer letter provides that she is eligible for an initial equity grant in the form of restricted stock, which was issued to Ms. Violette in fiscal year 2017 and has since fully vested.

In the event of a termination of Ms. Violette's employment by Q32 without "cause" or Ms. Violette resigns for "good reason" (as each term is defined in her offer letter), subject to Ms. Violette's execution of a separation agreement and a general release of claims in favor of Q32, Ms. Violette will be entitled to receive (i) base salary continuation for twelve (12) months following her date of termination; and (ii) if Ms. Violette elects continued COBRA healthcare coverage, continued healthcare coverage in the amount contributed by Q32 for a period of twelve (12) months.

Outstanding Equity Awards at 2023 Fiscal Year-End

The following table sets forth information concerning outstanding equity awards held by each of the NEOs as of December 31, 2023.

	Option Awards (1)				
Name	Vesting Commencement Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date
Jodie Morrison	09/08/2022 (2)	993,840	2,186,448	0.36	11/16/2032
	11/01/2022 (2)	861,328	2,318,960	0.36	11/16/2032
	10/19/2023 (2)	14,667	337,350	0.82	11/08/2033
Jason Campagna	03/08/2021 (3)	1,256,293	571,043	0.35	03/24/2031
	12/17/2021 (3)	186,938	186,939	0.35	12/16/2031
Shelia Violette	07/26/2018 (3)	90,837	—	0.15	12/06/2028
	09/17/2019 (3)	281,448	—	0.15	12/06/2028
	12/02/2020 (4)	607,500	202,500	0.35	12/01/2030
	03/15/2021 (5)	190,521	86,601	0.35	03/24/2031
	12/17/2021(3)	182,299	182,299	0.36	04/26/2033

(1) Each equity award is subject to the terms of Q32's 2017 Plan and the applicable award agreement.

(2) The shares subject to the stock option vest in 48 equal monthly installments following the vesting commencement date, in each case, subject to the NEO's continuous service relationship with Q32 through each applicable vesting date; provided that, in the event that Ms. Morrison is experiences a "qualifying termination" on or within the twelve month period following a "change in control," all unvested options shall accelerate and become fully vested and exercisable.

(3) 1/4 of the shares subject to the stock option vest on the first anniversary of the vesting commencement date, and 1/48 of the shares subject to the stock option vest each month thereafter, in each case, subject to the NEO's continuous service relationship with Q32 through each applicable vesting date; provided that, for Mr. Campagna, in the event that he is terminated by Q32 without "cause" or resigns for "good reason," in each case, within twelve months following a "sale event," all unvested options shall accelerate and become fully vested and exercisable.

(4) The shares subject to the stock option vest in 16 equal quarterly installments following the vesting commencement date, in each case, subject to Ms. Violette's continuous service relationship with Q32 through each applicable vesting date.

(5) 1/4 of the shares subject to the stock option vest on the first anniversary of the vesting commencement date, and 1/16 of the shares subject to the stock option vest each quarter thereafter, in each case, subject to Ms. Violette's continuous service relationship with Q32 through each applicable vesting date.

Employee benefit and equity compensation plans and arrangements

2017 Stock Option and Grant Plan

Q32's 2017 Plan was initially adopted by its board of directors, and subsequently approved by its stockholders, on December 7, 2017.

Authorized Shares. Under Q32's 2017 Plan, Q32 has reserved for issuance an aggregate of 25,956,535 shares of our common stock, which number is subject to adjustment in the event of a reorganization, stock split, reverse stock split, stock dividend, recapitalization, reclassification or other similar change in capitalization or event. The shares of common stock underlying any awards granted under its 2017 Plan that are forfeited, cancelled, reacquired by Q32 prior to vesting, satisfied without the issuance of common stock or otherwise terminated (other than by exercise) and shares that are withheld upon exercise of an option or settlement of an award to cover the exercise price or tax withholding are currently added to the shares of common stock available for issuance under Q32's 2017 Plan.

Administration. Q32's board of directors has acted as administrator of Q32's 2017 Plan. The administrator has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted and to determine the specific terms and conditions of each award, subject to the provisions of Q32's 2017 Plan.

Eligibility. Persons eligible to participate in Q32's 2017 Plan are Q32's full or part-time officers, employees, directors, consultants and other key persons as selected from time to time by the administrator in its discretion.

Awards. Q32's 2017 Plan permits the granting of (i) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and (ii) options that do not so qualify. The option exercise price of each option is determined by the administrator but may not be less than 100% of the fair market value of the common stock on the date of grant. The term of each option is fixed by the administrator and may not exceed ten years from the date of grant. The administrator determines at what time or times each option may be exercised. In addition, Q32's 2017 Plan permits the granting of restricted shares of common stock, unrestricted shares of common stock and restricted stock units.

Sale Events. Q32's 2017 Plan provides that upon the occurrence of a "sale event" (as defined in Q32's 2017 Plan), all outstanding stock options will terminate at the effective time of such sale event, unless the parties to the sale event agree that such awards will be assumed or continued by the successor entity. In the event of a termination of Q32's 2017 Plan and all options issued thereunder in connection with a sale event, optionees will be provided an opportunity to exercise options that are then exercisable or will become exercisable as of the effective time of the sale event prior to the consummation of the sale event. In addition, Q32 has the right to provide for cash payment to holders of options, in exchange for the cancellation thereof, in an amount equal to the difference between the value of the consideration payable per share of common stock in the sale event and the per share exercise price of such options, multiplied by the number of shares subject to such option to the extent then vested and exercisable. In the event of and subject to the consummation of a sale event, unvested restricted stock and restricted stock units (other than those becoming vested as a result of the sale event) will be forfeited immediately prior to the effective time of a sale event unless such awards are assumed or continued by the successor entity. If shares of restricted stock are forfeited in connection with a sale event, those shares of restricted stock shall be repurchased at a price per share equal to the original per share purchase price of such shares. Q32 has the right to provide for cash payment to holders of restricted stock or restricted stock units, in exchange for the cancellation thereof, in an amount per share equal to the value of the consideration payable per share of common stock in the sale event.

Amendment. Q32's board of directors may amend or discontinue Q32's 2017 Plan at any time, subject to stockholder approval where required by applicable law. The administrator of Q32's 2017 Plan may also amend or cancel any outstanding award, provided that no amendment to an award may adversely affect a participant's rights without his or her consent. The administrator of Q32's 2017 Plan is specifically authorized to exercise its discretion to reduce the exercise price of outstanding stock options or effect the repricing of such awards through cancellation and re-grants.

As of December 31, 2023, options to purchase up to 23,165,393 shares of Q32's common stock were outstanding under Q32's 2017 Plan.

2024 Stock Option and Incentive Plan

On February 11, 2024, Homology's board of directors, subject to stockholder approval, adopted the 2024 Plan. If Homology's stockholders approve the 2024 Plan, it will become effective upon the closing of the Merger. For a summary of the 2024 Plan, see Proposal No. 5 in this proxy statement/prospectus.

2024 Employee Stock Purchase Plan

On February 11, 2024, Homology's board of directors, subject to stockholder approval, adopted the 2024 ESPP. If Homology's stockholders approve the 2024 ESPP, it will become effective upon the closing of the Merger. For a summary of the 2024 ESPP, see Proposal No. 6 in this proxy statement/prospectus.

CERTAIN RELATED PERSON TRANSACTIONS OF HOMOLOGY

Policies and Procedures for Related Person Transactions

Homology's board of directors has adopted a written Related Person Transaction Policy, setting forth the policies and procedures for the review and approval or ratification of related person transactions. Under the policy, Homology's finance department is primarily responsible for developing and implementing processes and procedures to obtain information regarding related persons with respect to potential related person transactions and then determining, based on the facts and circumstances, whether such potential related person transactions do, in fact, constitute related person transactions requiring compliance with the policy. If Homology's finance department determines that a transaction or relationship is a related person transaction requiring compliance with the policy, its Chief Financial Officer is required to present to the audit committee all relevant facts and circumstances relating to the related person transaction. Homology's audit committee must review the relevant facts and circumstances of each related person transaction, including if the transaction is on terms comparable to those that could be obtained in arm's length dealings with an unrelated third party and the extent of the related person's interest in the transaction, take into account the conflicts of interest and corporate opportunity provisions of Homology's code of business conduct and ethics, and either approve or disapprove the related person transaction. If advance audit committee approval of a related person transaction requiring the audit committee's approval is not feasible, then the transaction may be preliminarily entered into by management upon prior approval of the transaction by the chair of the audit committee subject to ratification of the transaction by the audit committee at the audit committee's next regularly scheduled meeting; provided, that if ratification is not forthcoming, management will make all reasonable efforts to cancel or annul the transaction. If a transaction was not initially recognized as a related person, then upon such recognition the transaction will be presented to the audit committee for ratification at the audit committee's next regularly scheduled meeting; provided, that if ratification is not forthcoming, management will make all reasonable efforts to cancel or annul the transaction. Homology's management will update the audit committee as to any material changes to any approved or ratified related person transaction and will provide a status report at least annually of all then current related person transactions. No director may participate in approval of a related person transaction for which he or she is a related person.

The following are currently proposed transactions and certain transactions, arrangements and relationships since January 1, 2021 with Homology's directors, executive officers and stockholders owning 5% or more of its outstanding common stock.

Stock Purchase Agreement with Pfizer

On November 9, 2020, Homology entered into a stock purchase agreement, or the Stock Purchase Agreement, with Pfizer Inc., or Pfizer, which holds approximately 8.7% of Homology's common stock as of March 1, 2023, pursuant to which Pfizer purchased 5,000,000 shares of Homology's common stock through a private placement transaction at a purchase price of $12.00 per share, for an aggregate purchase price of $60.0 million. Under the Stock Purchase Agreement, Pfizer was granted an exclusive ROFR for a 30-month period beginning on the date of the closing of the private placement to negotiate a potential collaboration on the development and commercialization of HMI-102 and HMI-103. Pfizer may exercise its right of first refusal under the ROFR one time for each of HMI-102 and HMI-103 during the ROFR period. Additionally, Pfizer has designated a member to join Homology's Scientific Advisory Board to participate in matters related to the development of these programs. For more information regarding Pfizer and its equity holdings, see the section in this proxy statement/prospectus entitled "*Principal Stockholders of Homology*."

Employment Agreements

Homology has entered into employment agreements with its named executive officers.

Indemnification Agreements

Homology has entered into indemnification agreements with each of its directors and executive officers. These agreements, among other things, require Homology or will require Homology to indemnify each director (and in certain cases their related venture capital funds) and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of Homology, arising out of the person's services as a director or executive officer.

CERTAIN RELATED PERSON TRANSACTIONS OF THE COMBINED COMPANY

In addition to the compensation arrangements, including employment, termination of employment and change in control arrangements, with Q32's and Homology's directors and executive officers, including those discussed in the sections titled "*Directors and Officers of Homology Following the Merger*," "*Q32 Executive and Director Compensation*" and "*Homology Executive and Director Compensation*," the following is a description of each transaction involving Homology since January 1, 2021, each transaction involving Q32 since January 1, 2021 and each currently proposed transaction in which:

- either Q32 or Homology has been or is to be a participant;
- the amounts involved exceeded or will exceed the lesser of $120,000 and 1% of the average of Q32's or Homology's total assets at year-end for the last two completed fiscal years, as applicable; and
- in the case of Homology, any of Homology's directors, executive officers or holders of more than 5% of Homology's capital stock, or an affiliate or immediate family member of the foregoing persons, had or will have a direct or indirect material interest; and in the case of Q32 any of Q32's directors or executive officers who will become directors or executive officers of the combined company, or holders of more than 5% of Q32's capital stock who will become holders of more than 5% of the combined company's capital stock, or an affiliate or immediate family member of the foregoing persons, had or will have a direct or indirect material interest.

Homology Transactions

The following are certain transactions, arrangements and relationships with Homology's directors, executive officers and stockholders owning 5% or more of Homology's outstanding common stock since January 1, 2021.

Stock Purchase Agreement with Pfizer

On November 9, 2020, Homology entered into a stock purchase agreement, or the Stock Purchase Agreement, with Pfizer Inc., or Pfizer, which holds approximately 8.6% of Homology's common stock as of February 5, 2024, pursuant to which Pfizer purchased 5,000,000 shares of Homology common stock through a private placement transaction at a purchase price of $12.00 per share, for an aggregate purchase price of $60.0 million. Under the Stock Purchase Agreement, Pfizer was granted an exclusive ROFR for a 30-month period beginning on the date of the closing of the private placement to negotiate a potential collaboration on the development and commercialization of HMI-102 and HMI-103. Pfizer had a right of first refusal under the ROFR one time for each of HMI-102 and HMI-103 during the ROFR period. Additionally, Pfizer has designated a member to join our Scientific Advisory Board to participate in matters related to the development of these programs. The ROFR period expired in May 2023. For more information regarding Pfizer and its equity holdings, see the section titled "*Principal Stockholders of Homology*" in this proxy statement/prospectus.

Employment Agreements

Homology has entered into employment agreements with certain executive officers. Compensation arrangements for Homology executive officers are described elsewhere in this proxy statement/prospectus in the section titled "Interests of Homology Directors and Executive Officers in the Merger."

Indemnification Agreements

Homology has entered into indemnification agreements with each of its directors and executive officers. These agreements, among other things, require Homology or will require Homology to indemnify each director (and in certain cases their related venture capital funds) and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Q32 Transactions

The following is a description of transactions or series of transactions since January 1, 2021, to which Q32 was or will be a party, in which:

- the amount involved in the transaction exceeds, or will exceed, the lesser of $120,000 or one percent of the average of Q32's total assets for the last two completed fiscal years; and
- in which any of Q32's directors or executive officers who will become directors or executive officers of the combined company, or holders of more than 5% of Q32's capital stock who will become holders of more than 5% of the combined company's capital stock, or an affiliate or immediate family member of the foregoing persons, had or will have a direct or indirect material interest.

Compensation arrangements for Q32 named executive officers and directors are described elsewhere in this proxy statement/prospectus in the section titled "*Q32 Executive and Director Compensation*."

Private Placements of Securities

Series B Convertible Preferred Stock Financing – Second Closing

In November and December 2021, Q32 sold an aggregate of 18,229,873 shares of Series B preferred stock at a purchase price of $1.0971 per share for aggregate gross proceeds of approximately $19.9 million in the second closing of Series B preferred stock, or the Second Series B Closing. The following table summarizes purchases of Q32's Series B preferred stock by related persons in the Second Series B Closing:

Participant	Shares of Series B Preferred Stock	Total Cash Purchase Price ($)
Abingworth Bioventures VII LP (1)	1,671,072	1,833,333
Acorn Bioventures, L.P. (2)	3,465,975	3,999,999
Atlas Venture Opportunity Fund I, L.P. (3)	3,494,060	3,833,333
OrbiMed Private Investments VII, LP (4)	4,557,469	4,999,999

(1) Abingworth Bioventures VII LP, or ABV VII, may be deemed to beneficially own more than 5% of Q32's outstanding capital stock.
(2) Acorn Bioventures, L.P., or Acorn, beneficially owns more than 5% of Q32's outstanding capital stock. Isaac Manke is a General Partner at Acorn and a member of Q32's board of directors.
(3) Atlas Venture Opportunity Fund I, L.P., or Atlas Opportunity I, and entities affiliated with Atlas Opportunity I, beneficially own more than 5% of Q32's outstanding capital stock. David Grayzel is a Partner at Atlas Venture Life Science Advisors, LLC and a member of Q32's board of directors.
(4) These shares are held by OrbiMed Private Investments VII, LP, or OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares held by OPI VII.

Q32 Convertible Note Financing

In May 2022, Q32 entered into a note purchase agreement with certain existing investors to purchase up to an aggregate of $30.0 million in convertible notes, or the Convertible Notes, through December 31, 2022. The Convertible Notes bear interest at 5.0% per annum. The Convertible Notes become due on demand of the holders of the Convertible notes one year from the date of issuance. In May, August and December 2022, Q32 received $8.3 million, $5.0 million, and $16.7 million, respectively, in exchange for issuance of the Convertible Notes.

The Convertible Notes contain mandatory conversion features whereby the total outstanding amount of principal and accrued and unpaid interest of the Convertible Notes shall automatically convert into shares of Q32's common stock or preferred stock, as applicable, (i) upon an initial public offering of the Q32's common stock, (ii) upon the Q32's issuance and sale of shares of a new series of preferred stock to one or more investors in a private transaction provided, in each case, Q32 receives aggregate gross proceeds of at least $25.0 million, or, (i) and (ii) collectively, a mandatory conversion event. The value of the Convertible Notes plus accrued interest, if any, convert into shares of Q32's common stock or preferred stock, as applicable, at 90% of the purchase price of the per share purchase price of common stock or preferred stock, as applicable, in a mandatory conversion event.

If the mandatory conversion events do not occur and if the Convertible Notes have not been repaid by the maturity date for the Convertible Notes, the holders of the Convertible Notes may request the Convertible Notes plus accrued interest, if any, to be converted into Series B preferred stock at the Series B preferred stock convertible price of $1.0971.

In August 2022, Q32 entered into an amendment to the note purchase agreement with an aggregate principal amount of $5,000,001 Convertible Notes sold to Bristol-Myers Squibb Company, or BMS. In June 2023, Q32 entered into an amendment to the Convertible Notes extending the maturity date of the Convertible Notes to December 23, 2023. Immediately prior to the Effective Time, the Company shall cause the outstanding principal and accrued but unpaid interest on Q32 Convertible Notes to be converted into the applicable number of shares of Q32 Common Stock provided for under the terms of such Q32 Convertible Note, or the Convertible Notes Conversion,. All of Q32 Convertible Notes converted into shares of Q32 Common Stock shall no longer be outstanding and shall cease to exist, and each holder of Q32 Convertible Notes shall thereafter cease to have any rights with respect to Q32 Convertible Notes. Immediately following the Convertible Notes Conversion, at the Effective Time and by virtue of the Merger, all shares of Q32 Common Stock issued in the Convertible Notes Conversion shall be canceled and converted into the right to receive Homology Common Stock pursuant to the Merger Agreement.

The following table summarizes the aggregate amount of Convertible Notes purchased by related persons.

Participant	Aggregate Amount of Convertible Notes ($)
Abingworth Bioventures VII LP (1)	3,644,352
Acorn Bioventures, L.P. (2)	2,655,105
Atlas Venture Opportunity Fund II, L.P. (3)	6,913,845
Bristol-Myers Squibb Company (4)	5,000,001
OrbiMed Private Investments VII, LP (5)	7,445,508

(1) Abingworth Bioventures VII LP, or ABV VII, may be deemed to beneficially own more than 5% of Q32's outstanding capital stock.
(2) Acorn Bioventures, L.P., or Acorn, beneficially owns more than 5% of Q32's outstanding capital stock. Isaac Manke is a General Partner at Acorn and a member of Q32's board of directors.
(3) Atlas Venture Opportunity Fund II, L.P., or Atlas Opportunity II, and entities affiliated with Atlas Opportunity II beneficially own more than 5% of Q32's outstanding capital stock. David Grayzel is a Partner at Atlas Venture Life Science Advisors, LLC and a member of Q32's board of directors.
(4) BMS beneficially owns more than 5% of Q32's outstanding capital stock.
(5) These convertible notes are held by OrbiMed Private Investments VII, LP, or OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter

Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the convertible notes held by OPI VII.

Q32 Pre-Closing Financing

In connection with the Merger Agreement, Q32 entered into a Subscription Agreement in November 2023 with certain investors to consummate the Pre-Closing Financing. Pursuant to the Subscription Agreement, the investors agreed to purchase an aggregate of 35,032,111 shares of Q32 common stock, at a price of $1.989 per share, for aggregate gross proceeds of approximately $42.0 million. The closing of the Pre-Closing Financing is conditioned upon the satisfaction or waiver of the conditions to the Merger as well as certain other conditions. Five of the investors or their affiliates are beneficial holders of more than 5% of Q32's capital stock, and the table below sets forth the number of shares of Q32 common stock expected to be purchased by such holders at the closing of the Pre-Closing Financing:

Participant	Shares of Q32 Common Stock	Total Purchase Price ($)
Abingworth Bioventures VII LP (1)	4,332,673	5,194,442
Acorn Bioventures, L.P. (2)	3,156,665	3,784,526
Atlas Venture Opportunity Fund II, L.P. (3)	8,219,904	9,854,843
Bristol-Myers Squibb Company (4)	4,170,490	5,000,000
OrbiMed Private Investments VII, LP (5)	8,852,000	10,612,663

(1) Abingworth Bioventures VII LP, or ABV VII, may be deemed to beneficially own more than 5% of Q32's outstanding capital stock.
(2) Acorn Bioventures, L.P., or Acorn, beneficially owns more than 5% of Q32's outstanding capital stock. Isaac Manke is a General Partner at Acorn and a member of Q32's board of directors.
(3) Atlas Venture Opportunity Fund II, L.P., or Atlas Opportunity II, and entities affiliated with Atlas Opportunity II beneficially own more than 5% of Q32's outstanding capital stock. David Grayzel is a Partner at Atlas Venture Life Science Advisors, LLC and a member of Q32's board of directors.
(4) BMS beneficially owns more than 5% of Q32's outstanding capital stock.
(5) These shares will be held by OrbiMed Private Investments VII, LP, or OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares to be held by OPI VII.

Other Agreements with Q32 Stockholders

In connection with Q32's Series B convertible preferred stock financing, Q32 entered into investors' rights, voting and right of first refusal and co-sale agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of Q32 preferred stock and certain holders of Q32 common stock. These stockholder agreements will terminate upon the closing of the Merger.

Indemnification Agreements

Q32 has entered into agreements to indemnify its directors and executive officers. These agreements will, among other things, require Q32 to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding,

including any action by or in Q32's right, on account of any services undertaken by such person on Q32's behalf or that person's status as a member of Q32's board of directors to the maximum extent allowed under Delaware law.

Policies for Approval of Related Party Transactions

Q32's board of directors reviews and approves transactions with its directors, officers and holders of 5% or more of its voting securities and their affiliates, each a related party. Prior such transaction, the material facts as to the related party's relationship or interest in the transaction are disclosed to Q32's board of directors prior to their consideration of such transaction, and the transaction is not considered approved by the board of directors unless a majority of the directors who are not interested in the transaction approve the transaction. Further, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction are disclosed to the stockholders, who must approve the transaction in good faith.

HOMOLOGY'S DESCRIPTION OF CAPITAL STOCK

The following description summarizes some of the terms of Homology's restated certificate of incorporation and its amended and restated bylaws and of the DGCL This description is summarized from, and qualified in its entirety by reference to, Homology's restated certificate of incorporation and its amended and restated bylaws, each of which has been publicly filed with the SEC.

Homology's authorized capital stock consists of:

- 200,000,000 shares of common stock, par value $0.0001 per share; and
- 10,000,000 shares of preferred stock, par value $0.0001 per share.

Common Stock

Homology's common stock is listed on the Nasdaq Global Select Market under the symbol "FIXX."

Voting Rights. Holders of Homology's common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An election of directors by Homology's stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Subject to the supermajority votes for some matters, other matters shall be decided by the affirmative vote of Homology's stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter. Homology's restated certificate of incorporation and amended and restated bylaws also provide that its directors may be removed only for cause and only by the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon. In addition, the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon is required to amend or repeal, or to adopt any provision inconsistent with, several of the provisions of Homology's restated certificate of incorporation. See below under *"—Anti-Takeover Effects of Delaware Law and Homology's Certificate of Incorporation and Bylaws—Amendment of Charter Provisions*."

Rights Upon Liquidation. In the event of Homology's liquidation or dissolution, the holders of common stock are entitled to receive proportionately Homology's net assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock.

Other Rights. Holders of common stock have no preemptive, subscription, redemption or conversion rights. Homology's outstanding shares of common stock are, when issued and paid for, validly issued, fully paid and nonassessable. The rights, preferences and privileges of holders of common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that Homology may designate and issue in the future.

Transfer Agent

The transfer agent and registrar for Homology's common stock is American Stock Transfer & Trust Company, LLC.

Dividend

Holders of common stock are entitled to receive proportionately any dividends as may be declared by Homology's board of directors, subject to any preferential dividend rights of outstanding preferred stock. Homology has never declared or paid any cash dividends on its common stock. Homology does not intend to declare or pay cash dividends for the foreseeable future. Homology currently expects to retain all future earnings, if any, for use in the development, operation and expansion of its business. Any determination to pay cash

dividends in the future will depend upon, among other things, Homology's results of operations, plans for expansion, tax considerations, available net profits and reserves, limitations under law, financial condition, capital requirements and other factors that Homology's board of directors considers to be relevant.

Preferred Stock

Under the terms of Homology's restated certificate of incorporation, Homology's board of directors is authorized to issue shares of preferred stock in one or more series without stockholder approval. Homology's board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing Homology's board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of Homology's outstanding voting stock.

Anti-Takeover Effects of Delaware Law and Homology's Certificate of Incorporation and Bylaws

Some provisions of Delaware law, Homology's restated certificate of incorporation and its amended and restated bylaws could make the following transactions more difficult: an acquisition of Homology by means of a tender offer; an acquisition of Homology by means of a proxy contest or otherwise; or the removal of Homology's incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in Homology's best interests, including transactions which provide for payment of a premium over the market price for its shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of Homology to first negotiate with its board of directors. Homology believes that the benefits of the increased protection of its potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure Homology outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock

The ability of Homology's board of directors, without action by the stockholders, to issue up to 10,000,000 shares of undesignated preferred stock with voting or other rights or preferences as designated by its board of directors could impede the success of any attempt to change control of it. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of Homology.

Stockholder Meetings

Homology's amended and restated bylaws provide that a special meeting of stockholders may be called only by its chairman of the board, chief executive officer or president (in the absence of a chief executive officer), or by a resolution adopted by a majority of its board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Homology's amended and restated bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Homology's restated certificate of incorporation eliminates the right of stockholders to act by written consent without a meeting.

Staggered Board

Homology's board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by Homology's stockholders. This system of electing and removing directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of Homology, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Removal of Directors

Homology's restated certificate of incorporation and amended and restated bylaws provide that, subject to the rights of holders of any series of preferred stock, no member of its board of directors may be removed from office by its stockholders except for cause and, in addition to any other vote required by law, upon the approval of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote in the election of directors. Subject to the rights of holders of any series of preferred stock, any vacancy on Homology's board of directors, including a vacancy resulting from an enlargement of its board of directors, may be filled only by vote of a majority of its directors then in office, unless its board of directors determines by resolution that any such vacancy or newly created directorship shall be filled by its stockholders.

Stockholders Not Entitled to Cumulative Voting

Homology's restated certificate of incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of Homology's common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of its preferred stock may be entitled to elect.

Delaware Anti-Takeover Statute

Homology is subject to Section 203 of the General Corporation Law of the State of Delaware, which prohibits persons deemed to be "interested stockholders" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

Homology's restated certificate of incorporation provides that, unless it consents in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for: (1) any derivative action or proceeding brought on its behalf; (2) any action asserting a claim of breach of a fiduciary duty or other wrongdoing by any of its directors, officers, employees or agents to it or its stockholders; (3) any action asserting a claim against it arising pursuant to any provision of the General Corporation Law of the State of Delaware or its restated certificate of incorporation or amended and restated bylaws; or (4) any action

asserting a claim governed by the internal affairs doctrine. Homology's restated certificate of incorporation also provides that any person or entity purchasing or otherwise acquiring any interest in shares of its capital stock will be deemed to have notice of and to have consented to this choice of forum provision. It is possible that a court of law could rule that the choice of forum provision contained in Homology's restated certificate of incorporation is inapplicable or unenforceable if it is challenged in a proceeding or otherwise.

In addition, Homology's amended and restated bylaws provide that unless it consents in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended, and any person or entity purchasing or otherwise acquiring or holding any interest in Homology's shares of capital stock shall be deemed to have notice of and consented to this choice of forum provision.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for Homology's board of directors to issue preferred stock and the provision prohibiting cumulative voting, would require approval by holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon.

The provisions of Delaware law, Homology's restated certificate of incorporation and its amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of Homology's common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of Homology's board and management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

COMPARISON OF RIGHTS OF HOLDERS OF HOMOLOGY CAPITAL STOCK AND Q32 CAPITAL STOCK

If the Merger is completed, Q32 stockholders will receive shares of Homology common stock, pursuant to the terms of the Merger Agreement. Immediately prior to the closing of the Merger, Homology's Restated Certificate of Incorporation will be amended to effect the Authorized Share Increase and the Reverse Stock Split, as set forth in the form of Certificate of Amendment attached as *Annex G* to this proxy statement/prospectus. In addition, after the completion of the Merger, Homology's Restated Certificate of Incorporation will be amended to change its corporate name to "Q32 Bio Inc."

Homology and Q32 are both incorporated under the laws of the State of Delaware. The rights of Homology stockholders and Q32 stockholders are generally governed by the DGCL. Upon completion of the Merger, Q32 stockholders will become Homology stockholders, and their rights will be governed by the DGCL, the Amended and Restated Bylaws of Homology and the Restated Certificate of Incorporation of Homology.

The material differences between the current rights of Q32 stockholders under the Q32 Second Amended and Restated Certificate of Incorporation and Bylaws and their rights as Homology stockholders, after the Merger, under the Homology Restated Certificate of Incorporation and the Amended and Restated Bylaws, both as will be in effect immediately following the completion of the Merger, are summarized below. The summary below does not purport to be complete and is subject to, and qualified in its entirety by reference to, the DGCL and the governing corporate instruments that are subject to amendment in accordance with their terms. You should carefully read this entire document and the other referenced documents, including the governing corporate instruments, for a more complete understanding of the differences between being a stockholder of Homology or Q32 before the Merger and being a Homology stockholder following the completion of the Merger.

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Organizational Documents	
The rights of Homology stockholders are governed by Homology's Restated Certificate of Incorporation, Homology's Amended and Restated Bylaws and the DGCL.	The rights of Q32 stockholders are governed by Q32's Second Amended and Restated Certificate of Incorporation, Q32's Bylaws and the DGCL.
Authorized Capital Stock	
Homology is authorized to issue two classes of capital stock which are designated, respectively, "common stock" and "preferred stock." The total number of shares that Homology is authorized to issue is 210,000,000, of which 200,000,000 shares are common stock, par value $0.0001 per share, and 10,000,000 shares are preferred stock, par value $0.0001 per share. The number of authorized shares of common stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the stock of Homology entitled to vote, irrespective of the provisions of Section 242(b)(2) of the DGCL. The number of authorized shares of Homology preferred stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the	Q32 is authorized to issue two classes of capital stock, which are designated, respectively, "common stock" and "preferred stock." The total number of shares that Q32 is authorized to issue is 259,833,356, of which 141,900,000 shares are common stock, par value $0.0001 per share, and 117,933,356 shares are preferred stock, par value $0.0001 per share. The number of authorized shares of Q32 preferred stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the outstanding shares of preferred stock, voting or consenting together as a single class on an as-converted basis, or the Required Vote, and, under certain circumstances, (i) the number of authorized shares of Q32's Series B Preferred Stock may be increased or decreased only by the affirmative vote of

Homology	Q32
stock of Homology entitled to vote, irrespective of the provisions of Section 242(b)(2) of the DGCL.	the holders of a majority of the outstanding shares of Series B Preferred Stock, and (ii) the number of authorized shares of Q32's Series A Preferred Stock may be increased or decreased only by the affirmative vote of the holders of a majority of the outstanding shares of Series A Preferred Stock. The number of authorized shares of common stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the Required Vote and the holders of a majority of the outstanding shares of Q32's capital stock, given in writing or by vote at a meeting, irrespective of the provisions of Section 242(b)(2) of the DGCL.
Common Stock	
Homology's authorized common stock consists of 200,000,000 shares of common stock. Each holder of a share of Homology common stock is entitled to one vote for each such share held of record on the applicable record date on each matter voted on at a meeting of stockholders, provided, however, that, except as otherwise required by law, holders of Homology common stock will not be entitled to vote on any amendment to the Homology's Restated Certificate of Incorporation, that relates solely to the terms of one or more outstanding series of Homology preferred stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon pursuant to the Homology's Restated Certificate of Incorporation or the DGCL.	Q32's authorized common stock consists of 141,900,000 shares of common stock. Each holder of a share of Q32 common stock is entitled to one vote for each such share held of record on the applicable record date on each matter voted on at a meeting of stockholders.
Preferred Stock	
Homology's authorized preferred stock consists of 10,000,000 shares of preferred stock. No shares of Homology preferred stock are currently outstanding.	Q32's authorized preferred stock consists of 117,933,356 shares of preferred stock, of which (a) 6,500,000 shares have been designated "Series A1 Preferred Stock", all of which are currently issued and outstanding, (b) 47,628,788 shares have been designated "Series A Preferred Stock", all of which are currently issued and outstanding, (c) 63,804,568 shares have been designated "Series B Preferred Stock", of which 54,689,627 shares are currently issued and outstanding.
Number and Qualification of Directors	
The Homology board of directors consists of one or more members, and the number of directors is fixed from time to time by resolution of the Homology board	The Q32 board of directors consists of one or more members, and the number of directors is fixed from time to time by resolution of the Q32 board of

Homology	Q32
of directors. The Homology board of directors currently consists of six members. No decrease in the authorized number of directors constituting the Homology board of directors will shorten the term of any incumbent director. Directors of Homology need not be stockholders of Homology.	directors and by the written consent or vote of the requisite stockholders of Q32. The Q32 board of directors currently consists of eight members. No decrease in the authorized number of directors constituting the Q32 board of directors will shorten the term of any incumbent director. Directors of Q32 need not be stockholders of Q32.
Structure of Board of Directors; Term of Directors; Election of Directors	
Other than any directors elected by the separate vote of the holders of any series of Homology preferred stock, the Homology board of directors is divided into three classes, designated as Class I, Class II and Class III, respectively. Directors are assigned to each class in accordance with a resolution or resolutions adopted by the Homology board of directors. Subject to the rights of holders of any series of Homology preferred stock to elect directors, each director will serve for a term ending on the date of the third annual meeting of stockholders following the annual meeting of stockholders at which such director was elected; provided that each director initially assigned to Class I will serve for a term expiring at Homology's first annual meeting of stockholders held after the effectiveness of the Homology's Restated Certificate of Incorporation; each director initially assigned to Class II will serve for a term expiring at Homology's second annual meeting of stockholders held after the effectiveness of the Homology's Restated Certificate of Incorporation; and each director initially assigned to Class III shall serve for a term expiring at Homology's third annual meeting of stockholders held after the effectiveness of the Homology's Restated Certificate of Incorporation. The term of each director will continue until the election and qualification of his or her successor and be subject to his or her earlier death, resignation or removal.	The holders of record of shares of Series B Preferred Stock, exclusively and as a separate class, are entitled to elect two directors of the Q32 board of directors, the holders of record of shares of Series A Preferred Stock, exclusively and as a separate class, are entitled to elect three directors of the Q32 board of directors and the holders of record of shares of Common Stock, exclusively and as a separate class, are entitled to elect one director of the Q32 board of directors. If the holders of shares of Preferred Stock or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, then any directorship not so filled shall remain vacant until such time as the holders of the applicable shares of Preferred Stock or Common Stock, as the case may be, elect a person to fill such directorship. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class on an as-as converted to Common Stock basis, shall be entitled to elect the balance of the total number of directors of Q32. The members of the board of directors serve on the Q32 board of directors until their successors are elected and qualified or until their earlier resignation or removal.
Removal of Directors	
Subject to the rights of the holders of any series of Homology preferred stock, or except as otherwise provided by the DGCL, the Homology board of directors or any individual director may be removed from office but only for cause and only by the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock of Homology entitled to vote at an election of directors.	Subject to the special rights of the holders of one or more series of Q32 preferred stock to elect directors, or except as otherwise provided by the DGCL or the Q32 Second Amended and Restated Certificate of Incorporation, the Q32 board of directors or any individual director may be removed from office at any time, with or without cause, by the holders of a majority of shares entitled to vote at an election of directors, provided that (i) such removal is directed or approved by the affirmative vote of the person or groups with the right to designate the applicable

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	directors, or (ii) the person or groups originally entitled to designate or approve such director is no longer so entitled to designate or approve such director.
Vacancies on the Board of Directors	
Subject to the rights of holders of any series of Homology preferred stock, any vacancy or newly created directorship in the Homology board of directors will be filled only by vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director and will not be filled by the stockholders, unless the Homology board of directors determines by resolution that any such vacancy or newly created directorship will be filled by the stockholders. A director elected to fill a vacancy will hold office until the next election of the class for which such director has been chosen, subject to the election and qualification of a successor and to such director's earlier death, resignation or removal.	Any director may resign at any time upon notice in writing or electronic transmission to Q32. Such resignation is effective upon Q32's receipt unless it is specified to be effective at some other time or upon the happening of some other event. Subject to any limitations imposed by applicable law and subject to the rights of the holders of any series of Q32 preferred stock, any vacancies resulting from, resignation, removal or other causes and any newly created directorships resulting from any increase in the number of directors, will, unless the Q32 board of directors determines by resolution that any such vacancies or newly created directorships will be filled by the stockholders and except as otherwise provided by applicable law, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum, or by a sole remaining director, and not by the stockholders.
Stockholder Action by Written Consent	
No action that is required or permitted to be taken by the stockholders of Homology at any annual or special meeting of stockholders may be effected by written consent of stockholders in lieu of a meeting.	Action may be taken by the stockholders at an annual or special meeting of stockholders called in accordance with Q32's Bylaws, or by the written consent or electronic transmission of the Q32 stockholders entitled to vote thereon.
Quorum	
Unless otherwise provided by law, Homology's Restated Certificate of Incorporation or Homology's Amended and Restated Bylaws, the holders of a majority in voting power of the capital stock issued and outstanding and entitled to vote, present in person, or by remote communication, if applicable, or represented by proxy, will constitute a quorum for the transaction of business at all meetings of the stockholders. If a quorum is not present or represented at any meeting of the stockholders, then either (a) the chairperson of the meeting or (b) a majority in voting power of the stockholders entitled to vote thereon, present in person, or by remote communication, if applicable, or represented by proxy, will have power to adjourn the meeting from time to time until a quorum is present or represented. At such adjourned meeting at which a	Unless otherwise provided by law, Q32's Second Amended and Restated Certificate of Incorporation, or Q32's Bylaws, at each meeting of stockholders, the holders of a majority in interest of all stock issued, outstanding and entitled to vote at the meeting, present in person, by remote communication, if applicable, or represented by proxy, will constitute a quorum for the transaction of business. Any meeting may be adjourned from time to time by a majority of the votes properly cast upon the question, whether or not a quorum is present.

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quorum is present or represented, any business may be transacted that might have been transacted at the meeting as originally noticed.	
Special Meetings of Stockholders	
Special meetings of stockholders for any purpose or purposes may be called at any time only by the Homology board of directors, the chairperson of the Homology board of directors, the chief executive officer or the president (in the absence of a chief executive officer) of Homology. The Homology board of directors will determine the time and place, if any, of such special meeting. Special meetings may not be called by any other person or persons.	Special meetings of stockholders for any purpose or purposes may be called at any time by the Chief Executive Officer, if one is elected, or, if there is no Chief Executive Officer, a President, or by the Board of Directors. The call for the meeting will state the time and place, date, hour and purpose of such meeting. Special meetings may not be called by any other person or persons. Only the purposes specified in the notice of special meeting shall be considered or dealt with at such special meeting.
Notice of Stockholder Meetings	
Notice of all meetings of stockholders is to be given in writing or by electronic transmission in the manner provided by law and Homology's Amended and Restated Bylaws, stating the place, if any, date and hour, of the meeting, and, in the case of a special meeting, the purpose or purposes of the meeting, the record date for determining the stockholders entitled to vote at the meeting (if such date is different from the record date for stockholders entitled to notice of the meeting), and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at any such meeting. Unless otherwise required by applicable law, such notice is to be given not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder of record entitled to vote at such meeting.	Notice of all meetings of stockholders is to be given in writing or by electronic transmission in the manner provided by law and Q32's Bylaws, stating the place, if any, date and hour of the meeting, the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present and vote at such meeting, and, in the case of a special meeting, the purpose or purposes of the meeting, shall be given by the Secretary (or other person authorized by Q32's Bylaws or by law) not less than ten (10) nor more than sixty (60) days before the meeting to each stockholder entitled to vote thereat and to each stockholder who, under Q32's Second Amended and Restated Certificate of Incorporation or under bylaws is entitled to such notice.
Advance Notice Requirements for Stockholder Proposals	
Nominations of persons for election to the Homology board of directors and the proposal of business other than nominations to be considered by the stockholders may be made at an annual meeting of stockholders only (i) by or at the direction of the Homology board of directors or any committee thereof, or (ii) by any stockholder of Homology who is a stockholder of record at the time the written notice provided is delivered to the Corporate Secretary of Homology, who is entitled to vote at the meeting and who complies with the notice procedures set forth in Homology's Amended and Restated Bylaws. For the avoidance of doubt, the foregoing clause (ii) is the exclusive means for a stockholder to make director nominations and submit	Nominations of persons for election to the Q32 board of directors to be considered by the stockholders may be made at an annual meeting of stockholders only (i) pursuant to Q32's notice of such meeting, (ii) by or at the direction of the Q32 board of directors or (iii) by any stockholder of Q32 who is a stockholder of record at the time the notice provided is delivered to Q32, who is entitled to vote at the meeting and who complies with the notice procedures set forth in Q32's Bylaws.

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other business (other than matters properly included in the corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Exchange Act) before an annual meeting of stockholders.	
Amendment of Restated Certificate of Incorporation	
The affirmative vote of holders of at least two-thirds in voting power of the outstanding shares of capital stock of Homology entitled to vote thereon will be required to amend certain provisions of Homology's Restated Certificate of Incorporation, including removal of directors, actions by written consent, and forum selection. Notwithstanding any other provisions of Homology's Restated Certificate of Incorporation, Homology's Amended and Restated Bylaws, or any provision of law which might otherwise permit a lesser vote or no vote, stockholders may vote to amend Homology's Restated Certificate of Incorporation pursuant to Section 242 of the DGCL.	The affirmative vote of holders of at least a majority of the outstanding shares of Series B Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Second Amended and Restated Certificate of Incorporation, in a manner that adversely affects the Series B Preferred Stock. The affirmative vote of holders of at least a majority of the outstanding shares of Series A Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Second Amended and Restated Certificate of Incorporation, in a manner that adversely affects the Series A Preferred Stock. The affirmative vote of holders of at least a majority of the outstanding shares of Series A1 Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Second Amended and Restated Certificate of Incorporation, in a manner that adversely affects the Series A1 Preferred Stock. The affirmative vote of the holders representing the Required Vote, will be required to amend Q32's Second Amended and Restated Certificate of Incorporation, including provisions relating to increasing the authorized capital stock and authorizing the creation of additional series of capital stock. Notwithstanding any other provisions of Q32's Second Amended and Restated Certificate of Incorporation, Q32's Bylaws, or any provision of law which might otherwise permit a lesser vote or no vote, stockholders may vote to amend Q32's Second Amended and Restated Certificate of Incorporation pursuant to Section 242 of the DGCL.
Amendment of Bylaws	
The affirmative vote of holders of at least two-thirds in voting power of the outstanding shares of capital stock of Homology is required to amend or repeal Homology's Amended and Restated Bylaws. The Homology board of directors also has the power to adopt, amend or repeal Homology's Amended and Restated Bylaws by the approval of a majority of the authorized number of directors.	Stockholders or board of directors of Q32 may alter, amend or repeal Q32's Bylaws; provided, (a) the board of directors may not alter, amend or repeal any provision of Q32's Bylaws which by law, by Q32's Second Amended and Restated Certificate of Incorporation or by Q32's Bylaws requires action by the stockholders and (b) any alteration, amendment or repeal of Q32's Bylaws by the board of directors and any new by-law adopted by the board of directors may be altered, amended or repealed by the

Homology	Q32
	stockholders. The affirmative vote of the holders representing the Required Vote, is required to amend Q32's Bylaws. The affirmative vote of holders of at least a majority of the outstanding shares of Series B Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Bylaws, in a manner that adversely affects the Series B Preferred Stock. The affirmative vote of holders of at least a majority of the outstanding shares of Series A Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Bylaws, in a manner that adversely affects the Series A Preferred Stock. The affirmative vote of holders of at least a majority of the outstanding shares of Series A1 Preferred Stock, voting together as a separate class, will be required to amend certain provisions of Q32's Bylaws, in a manner that adversely affects the Series A1 Preferred Stock.
Limitation on Director Liability	
The liability of the Homology directors for monetary damages is and will be eliminated to the fullest extent under applicable law. If applicable law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to Homology will be eliminated or limited to the fullest extent permitted by applicable law as so amended.	The liability of the Q32 directors for monetary damages is and will be eliminated to the fullest extent under applicable law. If applicable law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to Q32 will be eliminated or limited to the fullest extent permitted by applicable law as so amended.
Indemnification	
To the fullest extent permitted by applicable law, Homology's is authorized to provide indemnification of (and advancement of expenses to) directors and officers and agents of Homology (and any other persons to which applicable law permits Homology to provide indemnification) through provisions of Homology's Amended and Restated Bylaws, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law. If applicable law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to Homology will be eliminated or limited to the fullest extent permitted by applicable law as so amended	To the fullest extent permitted by applicable law, Q32 is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of Q32 (and any other persons to which applicable law permits Q32 to provide indemnification) through provisions of Q32's Bylaws, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law. If applicable law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to Q32 will be eliminated or limited to the fullest extent permitted by applicable law as so amended.
Conversion Rights	
Homology does not have any outstanding shares of preferred stock.	Q32's Second Amended and Restated Certificate of Incorporation provides that holders of Q32 preferred

Homology	Q32
	stock have the right to convert such shares into shares of common stock at any time at a conversion rate in accordance with the terms of Q32's Second Amended and Restated Certificate of Incorporation. In addition, upon the closing of the sale of shares of common stock in a firm-commitment underwritten public offering which results in at least $50 million of proceeds or upon the affirmative election of the holders representing the Required Vote, all outstanding shares of preferred stock will be converted into shares of common stock and such shares may not be reissued by Q32.
	Right of First Refusal
Homology does not have a right of first refusal in place.	Pursuant to the Amended and Restated Right of First Refusal and Co-Sale Agreement dated August 31, 2020, or the Right of First Refusal Agreement, certain stockholders party to the Right of First Refusal Agreement, or a Key Holder, wishing to transfer any shares of Q32 Common Stock must first provide Q32 with the right to purchase such shares. In such an event, if Q32 does not elect to exercise its right of first refusal in full, any holder of preferred stock that is party to the Right of First Refusal Agreement, or a Q32 Investor, has a secondary refusal right to purchase all or any portion of the shares of Q32 Common Stock which are proposed for sale or transfer by the Key Holders.
	Right of Co-Sale
Homology does not have a right of co-sale in place.	Pursuant to the Right of First Refusal Agreement, each Q32 Investor has a right of co-sale with respect to any Q32 Common Stock proposed to be transferred or sold by any Key Holder which is not earlier purchased by Q32 by exercise of its right of first refusal (as further described above) or by any Q32 Investor by exercise of their secondary right of first refusal (as further described above).
	Preemptive Rights
Homology stockholders do not have pre-emptive rights. Thus, if additional shares of Homology common stock are issued, the current holders of Homology common stock will own a proportionately smaller interest in a larger number of outstanding shares of common stock to the extent that they do not participate in the additional issuance.	Pursuant to the Second Amended and Restated Investors' Rights Agreement, dated August 31, 2020, or the IRA, if Q32 proposes to offer or sell new equity securities, Q32 shall first offer such securities to certain holders of Q32 preferred stock, or the Q32 Investors. Each of the Q32 Investors will then have the right to purchase securities in such new offering equal to the proportion of the ownership interest of such Q32 Investor prior to such offering.

Homology	Q32
Distributions to Stockholders	
Dividends upon Homology capital stock, subject to the provisions of Homology's Restated Certificate of Incorporation and applicable law, if any, may be declared by the Homology board of directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of Homology's Restated Certificate of Incorporation and applicable law.	Dividends upon Q32 capital stock, subject to the provisions of Q32's Second Amended and Restated Certificate of Incorporation and applicable law, if any, may be declared by the Q32 board of directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of Q32's amended and restated certificate of incorporation and applicable law. The Q32 board of directors may fix a record date for the determination of holders of Q32 common stock entitled to receive payment of a dividend or distribution declared thereon, which record date is not to precede the date upon which the resolution fixing the record date is adopted, and which record date may not be more than 60 days nor less than 10 days prior to the date fixed for the payment thereof.
Exclusive Forum	
Unless Homology consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of Homology; (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer, employee or stockholder of Homology to Homology or Homology stockholders; (iii) any action asserting a claim against Homology arising pursuant to any provision of the DGCL, Homology's Restated Certificate of Incorporation or Homology's Amended and Restated Bylaws; or (iv) any action asserting a claim against Homology governed by the internal affairs doctrine. The federal district courts of the United States will be the exclusive forum for the resolution of any complaint asserting a cause of action under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of Homology will be deemed to have notice of and to have consented to the forum selection provision of Homology's Restated Certificate of Incorporation.	Unless Q32 consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of Q32; (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of Q32 to Q32 or Q32's stockholders; (iii) any action asserting a claim against Q32 arising pursuant to any provision of the DGCL, Q32's Second Amended and Restated Certificate of Incorporation or Q32's Bylaws; or (iv) any action asserting a claim against Q32 governed by the internal affairs doctrine. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of Q32 will be deemed to have notice of and to have consented to the forum selection provision of Q32's Second Amended and Restated Certificate of Incorporation.
Registration Rights	
See "*Certain Related Person Transactions of Homology*" in this proxy statement/prospectus.	Under the IRA, certain holders of Q32 preferred stock that are party to the IRA have certain registration rights, including the right to demand that Q32 file a registration statement, so called "demand" registration rights, or request that their shares be covered by a registration statement that Q32 is otherwise filing, so-called "piggyback" registration rights.

Homology	Q32
Stock Transfer Restrictions Applicable to Stockholders	
Shares of Homology are transferable in the manner prescribed by law and Homology's Amended and Restated Bylaws.	Shares of Q32 are transferable in the manner prescribed by the DGCL.

PRINCIPAL STOCKHOLDERS OF HOMOLOGY

The following table sets forth information relating to the beneficial ownership of Homology common stock as of February 5, 2024, by (i) each person, or group of affiliated persons, known by Homology to beneficially own more than 5% of Homology's outstanding shares of common stock; (ii) each of its directors; (iii) each of its named executive officers; and (iv) all directors and executive officers as a group.

The number of shares beneficially owned by each stockholder is determined under rules issued by the SEC. Under these rules, a person is deemed to be a "beneficial" owner of a security if that person has or shares voting power or investment power, which includes the power to dispose of or to direct the disposition of such security. Except as indicated in the footnotes below, Homology believes, based on the information furnished and information filed with the SEC, that the individuals and entities named in the table below have sole voting and investment power with respect to all shares of common stock beneficially owned by them, subject to any applicable community property laws.

The percentage of shares beneficially owned is computed on the basis of 58,129,740 shares of Homology common stock outstanding as of February 5, 2024. Shares of Homology common stock that a person has the right to acquire within 60 days of February 5, 2024 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all directors and executive officers as a group. Unless otherwise indicated, the address for each of the stockholders in the table below is c/o Homology Medicines, Inc., One Patriots Park, Bedford, MA 01730.

	Beneficial Ownership Prior to this Offering	
Name of Beneficial Owner	**Number**	**Percent**
5% or Greater Stockholders		
Entities affiliated with ARCH Venture Fund (1)	5,768,694	9.9%
TLS Beta Pte. Ltd. (2)	5,650,996	9.7%
Pfizer Inc. (3)	5,000,000	8.6%
Entities affiliated with 5AM Ventures (4)	4,535,919	7.8%
Named Executive Officers and Directors		
Albert Seymour (5)	879,046	1.5%
W. Bradford Smith (6)	671,239	1.1%
Paul Alloway, Ph.D. (7)	319,305	*
Steven Gillis, Ph.D. (1)(8)	5,869,434	10.1%
Matthew R. Patterson (9)	101,690	*
Jeffrey V. Poulton (10)	72,000	*
Alise S. Reicin, M.D. (11)	85,160	*
Mary Thistle (12)	100,740	*
Arthur O. Tzianabos, Ph.D. (13)	2,162,192	3.6%
All executive officers and directors as a group (8 persons) (14)	**8,779,686**	**14.4%**

* Represents beneficial ownership of less than 1%.

(1) Based on a Schedule 13G/A filed with the SEC on February 13, 2020 and Homology's records. Consists of 4,631,031 shares of common stock held by ARCH Venture Fund VIII, L.P. ("ARCH Fund VIII") and 1,137,663 shares of common stock held by ARCH Venture Fund VIII Overage, L.P. ("ARCH Fund Overage"). The sole general partner of ARCH Fund VIII is ARCH Venture Partners VIII, L.P. ("ARCH Partners VIII"), which may be deemed to beneficially own the shares held by ARCH Fund VIII. The sole general partner of ARCH Partners VIII and ARCH Fund Overage is ARCH Venture Partners VIII, LLC ("ARCH VIII LLC"), which has shared voting and dispositive power over the shares of common stock held by each of ARCH Fund VIII and ARCH Fund Overage. ARCH Partners VIII and ARCH VIII LLC disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The managing directors of ARCH VIII LLC are Keith L. Crandell, Clinton Bybee and Robert Nelsen, and they may be deemed to have shared voting and dispositive power over the

shares of common stock held by ARCH Fund VIII and ARCH Fund Overage. Messrs. Crandell, Bybee and Nelsen disclaim beneficial ownership of such shares, except to the extent of any pecuniary interest therein. Steven Gillis, M.D., Ph.D., one of our directors, is a managing director at ARCH Venture Partners. Director Steven Gillis owns an interest in ARCH Partners VIII but does not have voting or investment control over the shares held by ARCH Fund VIII, and disclaims beneficial ownership of such shares, except to the extent of any pecuniary interest therein. The address of ARCH Fund VIII and ARCH Fund Overage is 8755 West Higgins Road, Suite 1025, Chicago, Illinois 60631.

(2) Based on a Schedule 13G/A filed with the SEC on February 14, 2022, Temasek Holdings (Private) Limited, Fullerton Management Pte Ltd and Temasek Life Sciences Private Limited each has shared voting and dispositive power over 5,650,996 shares of common stock, V- Sciences Investments Pte Ltd has shared voting and dispositive power over 3,055,703 shares of common stock, and TLS Beta Pte. Ltd. has shared voting and dispositive power over 2,595,293 shares of common stock. The principal business address of Temasek Holdings (Private) Limited, Fullerton Management Pte Ltd, Temasek Life Sciences Private Limited, V-Sciences Investments Pte Ltd and TLS Beta Pte. Ltd. is 60B Orchard Road #06-18 Tower 2, The Atrium@Orchard, Singapore 238891.

(3) Based on a Schedule 13G filed with the SEC on November 19, 2020, Pfizer Inc. has sole voting and dispositive power over all 5,000,000 shares. The address of Pfizer Inc. is 235 East 42nd Street, New York, NY 10017.

(4) Based on a Schedule 13G/A filed with the SEC on February 16, 2021 and Homology's records. Consists of 4,354,484 shares of common stock held by 5AM Ventures IV, L.P. ("Ventures IV"), as to which Ventures IV has shared voting and dispositive power, and 181,435 shares of common stock held by 5AM Co-Investors IV, L.P. ("Co-Investors IV"), as to which Co-Investors IV has shared voting and dispositive power. 5AM Partners IV, LLC ("Partners IV") is the sole general partner of Ventures IV and Co-Investors IV. Dr. John Diekman, Andrew J. Schwab and Dr. Scott M. Rocklage, are the managing members of Partners IV and, along with Partners IV, have shared voting and investment power over the shares beneficially owned by Ventures IV and Co-Investors IV. Kush M. Parmar, M.D., Ph.D., one of our directors, is an affiliate of Ventures IV. Each of Partners IV, Dr. Diekman, Mr. Schwab and Dr. Rocklage disclaim beneficial ownership of such shares except to the extent of its or their recurring interest therein. The address of all entities affiliated with 5AM Ventures is 501 2nd Street, Suite 350, San Francisco, CA 94107.

(5) Includes options to purchase 697,167 shares of common stock that are or will be immediately exercisable by Dr. Seymour within 60 days of February 5, 2024.

(6) Includes options to purchase 638,673 shares of common stock that are or will be immediately exercisable by Mr. Smith within 60 days of February 5, 2024.

(7) Includes options to purchase 291,269 shares of common stock that are or will be immediately exercisable by Dr. Alloway within 60 days of February 5, 2024.

(8) Includes options to purchase 100,740 shares of common stock that are or will be immediately exercisable by Dr. Gillis within 60 days of February 5, 2024.

(9) Consists of options to purchase 101,690 shares of common stock that are or will be immediately exercisable by Mr. Patterson within 60 days of February 5, 2024.

(10) Consists of options to purchase 72,000 shares of common stock that are or will be immediately exercisable by Mr. Poulton within 60 days of February 5, 2024.

(11) Consists of options to purchase 85,160 shares of common stock that are or will be immediately exercisable by Dr. Reicin within 60 days of February 5, 2024.

(12) Consists of options to purchase 100,740 shares of common stock that are or will be immediately exercisable by Ms. Thistle within 60 days of February 5, 2024.

(13) Includes options to purchase 2,033,414 shares of common stock that are or will be immediately exercisable by Dr. Tzianabos within 60 days of February 5, 2024.

(14) Includes options to purchase 2,842,580 shares of common stock that are or will be immediately exercisable within 60 days of February 5, 2024.

PRINCIPAL STOCKHOLDERS OF Q32

The following table and accompanying footnotes set forth certain information with respect to the beneficial ownership of Q32 common stock as of February 5, 2024 for:

- each of Q32's directors;
- each of Q32's named executive officers;
- all of Q32's directors and executive officers as a group; and
- each person, or group of affiliated persons, who beneficially owned more than 5% of Q32's outstanding shares of common stock.

Q32 has determined beneficial ownership in accordance with the rules of the Securities and Exchange Commission, and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as indicated by the footnotes below, Q32 believes, based on information furnished to it, that the persons and entities named in the table below have sole voting and sole investment power with respect to all shares of common stock that they beneficially owned, subject to applicable community property laws.

Beneficial ownership prior to the completion of the Merger is based on 116,685,327 shares of Q32 common stock outstanding as of February 5, 2024, after giving effect to the conversion of all outstanding shares of Q32's Preferred Stock (including warrants convertible into 377,899 shares of Q32 common stock) into an aggregate of 108,818,415 shares of Q32 common stock and without giving effect to any purchases in the Pre-Closing Financing or conversion of the Convertible Notes.

In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, Q32 deemed to be outstanding all shares of common stock subject to options held by that person or entity that are currently exercisable or that will become exercisable within 60 days of February 5, 2024. Q32 did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Q32, Bio Inc., 830 Winter St., Waltham, MA 02451.

	Beneficial Ownership Prior to the Merger	
Name of Beneficial Owner	Number	Percent
5% or Greater Stockholders:		
OrbiMed Private Investments VII, LP (1)	30,672,408	26.29%
Entities affiliated with Atlas Venture (2)	28,482,180	24.41%
Abingworth Bioventures VII LP (3)	15,013,216	12.87%
Acorn Bioventures, L.P. (4)	10,937,926	9.37%
Osage University Partners III, LP (5)	7,291,951	6.25%
Bristol-Myers Squibb Company (6)	6,628.788	5.68%
Directors and Named Executive Officers:		
Jason A. Campagna (7)	1,580,807	1.35%
Jodie Morrison (8)	2,355,628	2.02%
Shelia M. Violette (9)	2,198,893	1.88%
Bill Lundberg (10)	245,625	*
Kathleen LaPorte (11)	164,223	*
Mark Iwicki (12)	719,096	*
Jayson Punwani (13)	—	—
David Grayzel (14)	28,482,180	24.41%
Isaac Manke	—	—
Diyong Xu (15)	30,672,408	26.29%
All executive officers and directors as a group (11 persons)(16)	66,770,877	57.22%

* Represents beneficial ownership of less than 1%.

(1) Consists of (i) 17,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by OrbiMed Private Investments VII, LP, or OPI VII, and (ii) 13,672,408 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares held by OPI VII. The address for the OrbiMed entities is c/o OrbiMed Advisors LLC, 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(2) Consists of (i) 800,000 shares of Q32 common stock held by Atlas Venture Fund X, L.P., or Atlas Venture X, (ii) 5,200,000 shares of Q32 common stock issuable upon conversion of Q32 Series A1 preferred stock held by Atlas X, (iii) 12,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by Atlas X, and (iv) 10,482,180 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by Atlas Venture Opportunity Fund I, L.P., or Atlas Opportunity I. The general partner of Atlas X is Atlas Venture Associates X, L.P., or AVA X, and the general partner of AVA X is Atlas Ventures Associates X, LLC, or AVA X LLC. The general partner of Atlas Opportunity I is Atlas Venture Associates Opportunity I, L.P., or AVAO I, and the general partner of AVAO I is Atlas Venture Associates Opportunity I, LLC, or AVAO I LLC. David Grayzel is a member of AVA X LLC and AVAO I LLC, and is a member of Q32's board of directors. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, and Mr. Grayzel may be deemed to beneficially own the shares held by Atlas X and Atlas Opportunity I. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, and Mr. Grayzel expressly disclaim beneficial ownership of the securities owned by Atlas X and Atlas Opportunity I, except to the extent of its pecuniary interest therein, if any. The address for Atlas X, AVA X, AVA X LLC, Atlas Venture Opportunity I, AVAO I, and AVAO I LLC is 300 Technology Sq., 8th Floor, Cambridge, MA 02139.

(3) Consists of (i) 10,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by Abingworth Bioventures VII LP, or ABV VII, and (ii) 5,013,216 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by ABV VII. The Carlyle Group Inc., which is a publicly traded entity listed on Nasdaq, is the sole shareholder of Carlyle Holdings I GP Inc., which is the sole member of Carlyle Holdings I GP Sub L.L.C., which is the general partner of Carlyle Holdings I L.P., which, with respect to the securities reported herein, is the managing member of CG Subsidiary Holdings L.L.C., which is the managing member of TC Group, L.L.C., which is the managing member of Carlyle Investment Management, L.L.C., which is the sole member of Carlyle Genesis UK LLC. Carlyle Genesis UK LLC is the principal member of Abingworth LLP. ABV VII has delegated to Abingworth LLP all investment and dispositive power over the securities held of record by ABV VII. As a result, each of the foregoing entities may be deemed to share beneficial ownership of the securities held of record by ABV VII, but each disclaims such beneficial ownership. Voting and investment determinations with respect to the securities held by ABV VII are made by an investment committee of Abingworth LLP, which is comprised of Timothy Haines, Kurt von Emster, Bali Muralidhar and Andrew Sinclair. Each member of the investment committee disclaims beneficial ownership of the securities beneficially held by ABV VII. The address for each of the Carlyle entities is c/o The Carlyle Group, 1001 Pennsylvania Ave. NW, Suite 220 South, Washington, DC 20004-2505. The address for each of Abingworth LLP and ABV VII is c/o Abingworth LLP, 38 Jermyn Street, London, England SW1Y 6DN.

(4) Consists of 10,937,926 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by Acorn Bioventures, L.P., or Acorn. The general partner of Acorn is Acorn Capital Advisors GP, LLC. Isaac Manke is a General Partner at Acorn and a member of Q32's board of directors. The address for Acorn and Acorn Capital Advisors GP, LLC is 410 Lexington Ave, Suite 2626, New York, NY 10170.

(5) Consists of 7,291,951 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by Osage University Partners III, LP, or Osage. The general partner of Osage is Osage University GP III, LLC ("OUP GP III"). Robert Adelson, William Harrington and Marc Singer (the "OUP Managers")

are the managers of OUP GP III. OUP GP III and each OUP Manager may be deemed to share voting, investment and dispositive power over the shares held by OUP III and as a result may be deemed to have beneficial ownership over such securities. OUP GP III and each OUP Manager disclaims beneficial ownership over the securities held by OUP III, except to the extent of their respective pecuniary interests therein. The address of the principal business office of Osage University Partners III, L.P. is 50 Monument Road, Suite 201, Bala Cynwyd, PA 19004.

(6) Consists of 6,628,788 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by Bristol-Myers Squibb Company, or BMS. The address for BMS is Route 206 & Province Line Road, Princeton, NJ 08543-4000.

(7) Consists of 1,580,807 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(8) Consists of 2,355,628 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(9) Consists of (i) 755,556 shares of Q32 common stock held by Violette Holding LLC, or Violette Holdings, and (ii) 1,443,337 shares of Q32 common stock underlying options which are exercisable or will be come exercisable within 60 days or February 5, 2024. The address of Violette Holdings is c/o Shelia Violette, 91 Simonds Road, Lexington, MA 02420.

(10) Consists of (i) 25,000 shares of Q32 common stock held by Mr. Lundberg, and (ii) 220,625 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(11) Consists of (i) 113,124 shares of Q32 common stock held by The Kathleen D. LaPorte Revocable Trust, or the LaPorte Trust, and (ii) 51,099 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024. The address of the LaPorte Trust is c/o Kathleen D. LaPorte 30 Quail Ct., Portola Valley CA 94028.

(12) Consists of 660,731 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(13) Mr. Punwani resigned as a member of Q32's board of directors effective as of January 24, 2024.

(14) Consists of (i) 800,000 shares of Q32 common stock held by Atlas Venture Fund X, L.P., or Atlas Venture X, (ii) 5,200,000 shares of Q32 common stock issuable upon conversion of Q32 Series A1 preferred stock held by Atlas X, (iii) 12,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by Atlas X, and (iv) 10,482,180 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by Atlas Venture Opportunity Fund I, L.P., or Atlas Opportunity I. The general partner of Atlas X is Atlas Venture Associates X, L.P., or AVA X, and the general partner of AVA X is Atlas Ventures Associates X, LLC, or AVA X LLC. The general partner of Atlas Opportunity I is Atlas Venture Associates Opportunity I, L.P., or AVAO I, and the general partner of AVAO I is Atlas Venture Associates Opportunity I, LLC, or AVAO I LLC. David Grayzel is a member of AVA X LLC and AVAO I LLC, and is a member of Q32's board of directors. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, and Mr. Grayzel may be deemed to beneficially own the shares held by Atlas X and Atlas Opportunity I. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, and Mr. Grayzel expressly disclaim beneficial ownership of the securities owned by Atlas X and Atlas Opportunity I, except to the extent of its pecuniary interest therein, if any. The address for Atlas X, AVA X, AVA X LLC, Atlas Venture Opportunity I, AVAO I, and AVAO I LLC is 300 Technology Sq., 8th Floor, Cambridge, MA 02139.

(15) Consists of (i) 17,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock held by OrbiMed Private Investments VII, LP, or OPI VII, and (ii) 13,672,408 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock held by OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares held by OPI VII.

The address for the OrbiMed entities is c/o OrbiMed Advisors LLC, 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(16) Consists of (i) 1,693,680 shares of Q32 common stock, (ii) 5,200,000 shares of Q32 common stock issuable upon conversion of Q32 Series A1 preferred stock, (iii) 29,000,000 shares of Q32 common stock issuable upon conversion of Q32 Series A preferred stock, (iv) 24,154,588 shares of Q32 common stock issuable upon conversion of Q32 Series B preferred stock, and (v) 6,722,609 shares of Q32 common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

PRINCIPAL STOCKHOLDERS OF COMBINED COMPANY

Except where specifically noted, the following information and all other information contained in this proxy statement/prospectus does not give effect to the proposed Reverse Stock Split.

The following table sets forth certain information regarding beneficial ownership of the combined company's common stock immediately after consummation of the Merger, assuming the consummation of the Merger occurred on February 5, 2024 for: each stockholder expected by Homology and Q32 to become the beneficial owner of more than 5% of the combined company's outstanding common stock, each person expected to be a named executive officer of the combined company, each person expected to be a director of the combined company, and all of the combined company's expected directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Under those rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power with respect to the securities as well as any shares of common stock that the individual or entity has the right to acquire within 60 days of February 5, 2024 the exercise of stock options or other rights. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Except as noted by footnote, and subject to community property laws where applicable, Homology and Q32 believe, based on the information provided to them, that the persons and entities named in the table below have sole voting and investment power with respect to all common stock shown as beneficially owned by them.

The table lists applicable percentage ownership based on 217,800,320 shares of common stock of the combined company expected to be outstanding upon consummation of the Merger, after giving effect to the Pre-Closing Financing and prior to giving effect to the proposed Reverse Stock Split. The number of shares beneficially owned includes shares of common stock that each person has the right to acquire within 60 days, including upon the exercise of stock options and the vesting of restricted stock units. These stock options and restricted stock units shall be deemed to be outstanding for the purpose of computing the percentage of outstanding shares of the combined company's common stock expected to be owned by such person but shall not be deemed to be outstanding for the purpose of computing the percentage of outstanding shares of the combined organization's common stock expected to be owned by any other person.

Immediately after the Merger, Homology securityholders as of immediately prior to the Merger are expected to own approximately 25% of the outstanding shares of the combined company, former Q32 securityholders, including shares purchased in the Pre-Closing Financing and shares converted in connection with the Convertible Notes, are expected to own approximately 75% of the outstanding shares of the combined company and shares issued in the Pre-Closing Financing are expected to represent approximately 13 % of the outstanding shares of capital stock of the combined company, subject to certain assumptions, including, but not limited to, Homology's net cash as of the closing date of the Merger being equal to $60.0 million and Q32 issuing approximately $42.0 million of Q32 common stock in the Pre-Closing Financing. The table below assumes that, based on Homology's and Q32's capitalization as of November 16, 2023, the date of the Merger Agreement, the exchange ratio is estimated to be equal to approximately 0.8821 shares of Homology common stock, prior to giving effect to the proposed Reverse Stock Split. The estimated exchange ratio was derived on a fully-diluted basis as of November 16, 2023 using a stipulated value for Q32 of approximately $237.0 million (including the Pre-Closing Financing) and for Homology of approximately $80.0 million.

Name of Beneficial Owner	Beneficial Ownership Prior to the Merger Number	Percent
5% or Greater Stockholders:		
OrbiMed Private Investments VII, LP (1)	41,351,045	18.99%
Entities affiliated with Atlas Venture (2)	38,398,286	17.63%
Abingworth Bioventures VII LP (3)	20,239,579	9.29%
Acorn Bioventures, L.P. (4)	14,745,979	6.77%
Bristol-Myers Squibb Company (5)	13,920,495	6.39%
Directors and Named Executive Officers:		
Jason A. Campagna (6)	1,394,375	*
Jodie Morrison (7)	2,077,819	*
Shelia M. Violette (8)	1,939,568	*
Mary Thistle (9)	100,740	*
Arthur Tzianabos (10)	2,162,192	*
Bill Lundberg (11)	216,657	*
Kathleen LaPorte (12)	144,855	*
Mark Iwicki (13)	634,290	*
David Grayzel (14)	38,398,286	17.63%
Isaac Manke	—	—
Diyong Xu (15)	41,351,045	18.99%
All executive officers and directors as a group (12 persons)(16)	88,730,329	39.28%

* Represents beneficial ownership of less than 1%.

(1) Consists of 41,351,045 shares of the combined company's common stock held by OrbiMed Private Investments VII, LP, or OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares held by OPI VII. The address for the OrbiMed entities is c/o OrbiMed Advisors LLC, 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(2) Consists of (i) 15,877,186 shares of the combined company's common stock held by Atlas Venture Fund X, L.P., or Atlas X, (ii) 9,245,973 shares of the combined company's common stock held by Atlas Venture Opportunity Fund I, L.P., or Atlas Opportunity I, and (iii) 13,275,127 shares of the combined company's common stock held by Atlas Venture Opportunity Fund II, L.P., or Atlas Opportunity II. The general partner of Atlas X is Atlas Venture Associates X, L.P., or AVA X, and the general partner of AVA X is Atlas Ventures Associates X, LLC, or AVA X LLC. The general partner of Atlas Opportunity I is Atlas Venture Associates Opportunity I, L.P., or AVAO I, and the general partner of AVAO I is Atlas Venture Associates Opportunity I, LLC, or AVAO I LLC. The general partner of Atlas Opportunity II is Atlas Venture Associates Opportunity II, L.P., or AVAO II, and the general partner of AVAO II is Atlas Venture Associates Opportunity II, LLC, or AVAO II LLC. David Grayzel is a member of AVA X LLC, AVAO I LLC, and AVAO II LLC, and is a member of Q32's board of directors. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, AVAO II, AVAO II LLC, and Mr. Grayzel may be deemed to beneficially own the shares held by Atlas X, Atlas Opportunity I, and Atlas Opportunity II. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, AVAO II, AVAO II LLC, and Mr. Grayzel expressly disclaim beneficial ownership of the securities owned by Atlas X, Atlas Opportunity I, and Atlas Opportunity II, except to the extent of its pecuniary interest therein, if any. The address for Atlas X, AVA X, AVA X LLC, Atlas Opportunity I, AVAO I, AVAO I LLC, Atlas Opportunity II, AVAO II, AVAO II LLC is 300 Technology Sq., 8th Floor, Cambridge, MA 02139.

(3) Consists of 20,239,579 shares of the combined company's common stock held by Abingworth Bioventures VII LP, or ABV VII. The Carlyle Group Inc., which is a publicly traded entity listed on Nasdaq, is the sole shareholder of Carlyle Holdings I GP Inc., which is the sole member of Carlyle Holdings I GP Sub L.L.C., which is the general partner of Carlyle Holdings I L.P., which, with respect to the securities reported herein, is the managing member of CG Subsidiary Holdings L.L.C., which is the managing member of TC Group, L.L.C., which is the managing member of Carlyle Investment Management, L.L.C., which is the sole member of Carlyle Genesis UK LLC. Carlyle Genesis UK LLC is the principal member of Abingworth LLP. ABV VII has delegated to Abingworth LLP all investment and dispositive power over the securities held of record by ABV VII. As a result, each of the foregoing entities may be deemed to share beneficial ownership of the securities held of record by ABV VII, but each disclaims such beneficial ownership. Voting and investment determinations with respect to the securities held by ABV VII are made by an investment committee of Abingworth LLP, which is comprised of Timothy Haines, Kurt von Emster, Bali Muralidhar and Andrew Sinclair. Each member of the investment committee disclaims beneficial ownership of the securities beneficially held by ABV VII.

(4) Consists of 14,745,979 shares of the combined company's common stock held by Acorn Bioventures, L.P., or Acorn. The general partner of Acorn is Acorn Capital Advisors GP, LLC. Isaac Manke is a General Partner at Acorn and a member of Q32's board of directors. The address for Acorn and Acorn Capital Advisors GP, LLC is 410 Lexington Ave, Suite 2626, New York, NY 10170.

(5) Consists of 13,920,495 shares of the combined company's common stock held by Bristol-Myers Squibb Company, or BMS. The address for BMS is Route 206 & Province Line Road, Princeton, NJ 08543-4000.

(6) Consists of 1,394,375 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(7) Consists of 2,077,819 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(8) Consists of (i) 666,450 shares of the combined company's common stock held by Violette Holdings LLC, or Violette Holdings, and (ii) 1,273,118 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024. The address of Violette Holdings is c/o Shelia Violette, 91 Simonds Road, Lexington, MA 02420.

(9) Consists of 100,740 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(10) Consists of (i) 128,778 shares of the combined company's common stock Dr. Tzianabos, and (ii) 2,033,414 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(11) Consists of (i) 22,051 shares of the combined company's common stock held by Mr. Lundberg, and (ii) 194,606 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(12) Consists of (i) 99,782 shares of the combined company's common stock held by The Kathleen D. LaPorte Revocable Trust, or the LaPorte Trust, and (ii) 45,073 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024. The address of the LaPorte Trust is c/o Kathleen D. LaPorte 30 Quail Ct, Portola Valley, CA 94028.

(13) Consists of 634,290 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

(14) Consists of (i) 15,877,186 shares of the combined company's common stock held by Atlas Venture Fund X, L.P., or Atlas X, (ii) 9,245,973 shares of the combined company's common stock held by Atlas Venture Opportunity Fund I, L.P., or Atlas Opportunity I, and (iii) 13,275,127 shares of the combined company's common stock held by Atlas Venture Opportunity Fund II, L.P., or Atlas Opportunity II. The general partner of Atlas X is Atlas Venture Associates X, L.P., or AVA X, and the general partner of AVA X is Atlas Ventures Associates X, LLC, or AVA X LLC. The general partner of Atlas Opportunity I is Atlas Venture Associates Opportunity I, L.P., or AVAO I, and the general partner of AVAO I is Atlas Venture Associates Opportunity I, LLC, or AVAO I LLC. The general partner of Atlas Opportunity II is Atlas Venture Associates Opportunity II, L.P., or AVAO II, and the general partner of AVAO II is Atlas Venture Associates Opportunity II, LLC, or AVAO II LLC. David Grayzel is a member of AVA X LLC, AVAO I

LLC, and AVAO II LLC, and is a member of Q32's board of directors. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, AVAO II, AVAO II LLC, and Mr. Grayzel may be deemed to beneficially own the shares held by Atlas X, Atlas Opportunity I, and Atlas Opportunity II. Each of AVA X, AVA X LLC, AVAO I, AVAO I LLC, AVAO II, AVAO II LLC, and Mr. Grayzel expressly disclaim beneficial ownership of the securities owned by Atlas X, Atlas Opportunity I, and Atlas Opportunity II, except to the extent of its pecuniary interest therein, if any. The address for Atlas X, AVA X, AVA X LLC, Atlas Opportunity I, AVAO I, AVAO I LLC, Atlas Opportunity II, AVAO II, AVAO II LLC is 300 Technology Sq., 8th Floor, Cambridge, MA 02139.

(15) Consists of 41,351,045 shares of the combined company's common stock held by OrbiMed Private Investments VII, LP, or OPI VII. OrbiMed Capital VII LLC, or GP VII, is the general partner of OPI VII. OrbiMed Advisors LLC, or OrbiMed Advisors, is the managing member of GP VII. By virtue of such relationships, GP VII and OrbiMed Advisors may be deemed to have beneficial ownership over such shares. OrbiMed Advisors exercises investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild. Diyong Xu, a member of Q32's board of directors, is an employee of OrbiMed Advisors. Each of Dr. Gordon and Messrs. Borho, Neild, and Xu disclaim beneficial ownership of the shares held by OPI VII. The address for the OrbiMed entities is c/o OrbiMed Advisors LLC, 601 Lexington Avenue, 54th Floor, New York, NY 10022.

(16) Consists of (i) 80,666,392 shares of the combined company's common stock and (ii) 8,063,937 shares of the combined company's common stock underlying options which are exercisable or will become exercisable within 60 days of February 5, 2024.

LEGAL MATTERS

Latham & Watkins LLP will pass upon the validity of Homology common stock offered by this proxy statement/prospectus. Certain material U.S. federal income tax consequences of the Merger will be passed upon by Goodwin Procter LLP.

EXPERTS

The financial statements of Homology Medicines, Inc. as of December 31, 2022 and 2021, and for each of the two years in the period ended December 31, 2022, included in this proxy statement/prospectus, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report. Such financial statements are included in reliance upon the report of such firm given their authority as experts in accounting and auditing.

The consolidated financial statements of Q32 Bio, Inc. at December 31, 2022 and 2021, and for each of the two years in the period ended December 31, 2022, included in the Proxy Statement of Homology Medicines, Inc., which is referred to and made a part of this Prospectus and Registration Statement, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

Homology is subject to the informational requirements of the Exchange Act and in accordance therewith, files annual, quarterly and current reports, proxy statements and other information with the SEC electronically, and the SEC maintains a website that contains Homology's filings as well as reports, proxy and information statements, and other information issuers file electronically with the SEC at www.sec.gov.

Homology also makes available free of charge on or through its website at www.homologymedicines.com, its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after Homology electronically files such material with or otherwise furnishes it to the SEC. The website addresses for the SEC and Homology are inactive textual references and except as specifically incorporated by reference into this proxy statement/prospectus, information on those websites is not part of this proxy statement/prospectus.

Homology has filed with the SEC a registration statement on Form S-4, of which this proxy statement/prospectus is a part, under the Securities Act to register the shares of Homology common stock to be issued to Q32 stockholders in the Merger. The registration statement, including the attached annexes, exhibits and schedules, contains additional relevant information about Homology and Homology common stock. This proxy statement/prospectus does not contain all of the information set forth in the registration statement because certain parts of the registration statement are omitted in accordance with the rules and regulations of the SEC.

Homology has supplied all information contained in this proxy statement/prospectus relating to Homology and Q32 has supplied all information contained in this proxy statement/prospectus relating to Q32.

If you would like to request documents from Homology or Q32, please send a request in writing or by telephone to either Homology or Q32 at the following addresses:

Homology Medicines, Inc.
One Patriots Park
Bedford, MA 01730
(781) 327-2633
Attn: Corporate Secretary
Email: IR@homologymedicines.com

Q32 Bio Inc.
830 Winter Street
Waltham, MA 02451
Attn: Investor Relations
(781) 999-0232
Email: IR@q32bio.com

If you are a Homology stockholder and would like additional copies, without charge, of this proxy statement/prospectus or if you have questions about the Merger, including the procedures for voting your shares, you should contact Homology's proxy solicitor, Morrow Sodali, at the following address and telephone number:

Morrow Sodali LLC
430 Park Avenue, 14th Floor
New York, NY 10022
Banks and Brokers Call: (203) 658-9400
Stockholders Call Toll Free: (800) 662-5200

OTHER MATTERS

Stockholder Proposals and Director Nominations

Homology stockholders who intend to have a proposal considered for inclusion in Homology's proxy materials for presentation at the Homology annual meeting of stockholders to be held in 2024, or the 2024 Annual Meeting, pursuant to Rule 14a-8 under the Exchange Act must submit the proposal to Homology's Secretary at Homology's offices at One Patriots Park, Bedford, MA 01730 in writing not later than December 30, 2023.

Homology stockholders intending to present a proposal at Homology's 2024 Annual Meeting, but not to include the proposal in its proxy statement, or to nominate a person for election as a director, must comply with the requirements set forth in the Amended and Restated Bylaws of Homology. The Amended and Restated Bylaws of Homology require, among other things, that Homology's Secretary receive written notice from a stockholder of record of their intent to present such a proposal or nomination not earlier than the 120th day and not later than the 90th day prior to the anniversary of the preceding year's annual meeting of stockholders. Therefore, Homology must receive notice of such a proposal or nomination for the 2024 Annual Meeting no earlier than February 15, 2024 and no later than March 16, 2024. The notice must contain the information required by the Amended and Restated Bylaws of Homology. In the event that the date of the 2024 Annual Meeting is more than 30 days before or more than 60 days after June 14, 2024, then Homology's Secretary must receive such written notice not earlier than the close of business on the 120th day prior to the 2024 Annual Meeting and not later than the close of business of the 90th day prior to the 2024 Annual Meeting or, if later, the close of business of the 10th day following the day on which public disclosure of the date of such meeting is first made by Homology. SEC rules permit management to vote proxies in its discretion in certain cases if the stockholder does not comply with this deadline and, in certain other cases notwithstanding the Homology stockholder's compliance with this deadline. In addition to satisfying the foregoing requirements under the Amended and Restated Bylaws of Homology, to comply with the universal proxy rules (once they become effective), Homology stockholders who intend to solicit proxies in support of director nominees other than Homology's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act.

Homology reserves the right to reject, rule out of order or take other appropriate action with respect to any proposal that does not comply with these or other applicable requirements.

Homology intends to file a proxy statement and WHITE proxy card with the SEC in connection with the solicitation of proxies for Homology's 2024 Annual Meeting of Homology stockholders. Homology stockholders may obtain the proxy statement (and any amendments and supplements thereto) and other documents as and when filed by Homology with the SEC without charge from the SEC's website at: www.sec.gov.

Householding of Proxy Statement/Prospectus

SEC rules permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements and notices with respect to two or more stockholders sharing the same address by delivering a single proxy statement or a single notice addressed to those stockholders. This process, which is commonly referred to as "householding", provides cost savings for companies and helps the environment by conserving natural resources. Some brokers also household proxy materials, delivering a single proxy statement or notice to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Homology agrees to deliver promptly, upon written or oral request, a separate copy of the notice or proxy materials, as requested, to any Homology stockholder at the shared address to which a single copy of those documents was delivered. If you would like to receive a separate copy of these documents, or if you receive multiple copies and would like to receive a single copy of these documents, contact Broadridge Financial Solutions, Inc. at 1-866-540-7095 or in writing at Broadridge, Householding Department, 51 Mercedes Way, Edgewood, New York 11717.

INDEX TO FINANCIAL STATEMENTS

Consolidated Financial Statements of Homology Medicines, Inc. for the Years Ended December 31, 2022 and 2021

Unaudited Condensed Consolidated Financial Statements of Homology Medicines, Inc. for the Three and Nine Months Ended September 30, 2023 and 2022

Consolidated Financial Statements of Q32 Bio Inc. for the Years Ended December 31, 2022 and 2021

Unaudited Condensed Consolidated Financial Statements of Q32 Bio Inc. for the Nine Months Ended September 30, 2023 and 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of Homology Medicines, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Homology Medicines, Inc. and its subsidiary (the "Company") as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows, for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Boston, Massachusetts
March 9, 2023

We have served as the Company's auditor since 2017.

HOMOLOGY MEDICINES, INC.

CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$ 33,986	$ 108,382
Short-term investments	141,040	47,491
Assets held for sale	—	28,907
Prepaid expenses and other current assets	5,989	7,129
Total current assets	181,015	191,909
Equity method investment	25,814	—
Property and equipment, net	1,078	2,252
Right-of-use assets	20,563	15,607
Restricted cash	—	1,953
Total assets	$ 228,470	$ 211,721
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 1,144	$ 2,366
Accrued expenses and other liabilities	18,715	11,406
Operating lease liabilities	1,561	246
Deferred revenue	1,156	3,208
Total current liabilities	22,576	17,226
Non-current liabilities:		
Operating lease liabilities, net of current portion	27,916	23,688
Deferred revenue, net of current portion	—	1,156
Total liabilities	50,492	42,070
Stockholders' equity:		
Preferred stock, $0.0001 par value, 10,000,000 shares authorized as of December 31, 2022 and 2021; no shares issued and outstanding at December 31, 2022 and 2021	—	—
Common stock, $0.0001 par value; 200,000,000 shares authorized as of December 31, 2022 and 2021; 57,483,910 and 57,150,274 shares issued and outstanding as of December 31, 2022 and 2021, respectively	6	6
Additional paid-in capital	607,513	593,784
Accumulated other comprehensive gain	(404)	(7)
Accumulated deficit	(429,137)	(424,132)
Total stockholders' equity	177,978	169,651
Total liabilities and stockholders' equity	$ 228,470	$ 211,721

See notes to consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)

	For the Year Ended December 31,	
	2022	2021
Collaboration revenue	$ 3,208	$ 33,971
Operating expenses:		
Research and development	98,351	93,085
General and administrative	38,138	36,835
Total operating expenses	136,489	129,920
Loss from operations	(133,281)	(95,949)
Other income:		
Gain on sale of business	131,249	—
Interest income	3,230	185
Total other income	134,479	185
Income (loss) before income taxes	1,198	(95,764)
Provision for income taxes	(715)	—
Loss from equity method investment	(5,488)	—
Net loss	$ (5,005)	$ (95,764)
Net loss per share-basic and diluted	$ (0.09)	$ (1.73)
Weighted average common shares outstanding-basic and diluted	57,399,762	55,283,318

See notes to consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	For the Year Ended December 31,	
	2022	2021
Net loss	$(5,005)	$(95,764)
Other comprehensive gain (loss):		
Change in unrealized gain (loss) on available for sale securities, net	(397)	(7)
Total other comprehensive gain (loss)	(397)	(7)
Comprehensive loss	$(5,402)	$(95,771)

See notes to consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share and per share amounts)

	Common Stock $0.0001 Par Value		Additional Paid-in Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at January 1, 2021	50,265,575	$ 5	$524,358	$ —	$ (328,368)	195,995
Issuance of common stock in follow-on offering, net of discounts and issuance costs	6,596,306	1	49,743	—	—	49,744
Vesting of common stock from option exercises	3,091	—	13	—	—	13
Issuance of common stock from option exercises	59,465	—	145	—	—	145
Issuance of common stock pursuant to employee stock purchase plan	110,923	—	826	—	—	826
Issuance of common stock pursuant to ATM, net of discounts and issuance costs	114,914	—	1,454	—	—	1,454
Stock-based compensation	—	—	17,245	—	—	17,245
Other comprehensive loss	—	—	—	(7)	—	(7)
Net loss	—	—	—	—	(95,764)	(95,764)
Balance at December 31, 2021	57,150,274	$ 6	$593,784	$ (7)	$ (424,132)	$ 169,651
Issuance of common stock from RSU vesting	106,890					—
Issuance of common stock from option exercises	293	—	1	—	—	1
Issuance of common stock pursuant to employee stock purchase plan	226,453	—	595	—	—	595
Stock-based compensation	—	—	13,054	—	—	13,054
Stock-based compensation for equity method investee			79			79
Other comprehensive loss	—	—	—	(397)	—	(397)
Net loss	—	—	—	—	(5,005)	(5,005)
Balance at December 31, 2022	57,483,910	$ 6	$607,513	$ (404)	$ (429,137)	$ 177,978

See notes to consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Year Ended December 31,	
	2022	2021
Cash flows from operating activities:		
Net loss	$ (5,005)	$ (95,764)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	1,293	8,353
Noncash lease expense	1,306	1,191
Loss from equity method investment	5,488	—
Stock-based compensation expense	13,054	17,245
(Accretion of discount) amortization of premium on short-term investments	(1,947)	894
Loss on disposal of property and equipment	49	133
Gain on sale of business	(131,249)	—
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	840	(4,996)
Accounts payable	(981)	(2,487)
Accrued expenses and other liabilities	7,418	1,500
Deferred revenue	(3,208)	(33,411)
Operating lease liabilities	(719)	(2,409)
Net cash used in operating activities	(113,661)	(109,751)
Cash flows from investing activities:		
Purchases of short-term investments	(157,460)	(97,392)
Maturities of short-term investments	65,461	49,000
Proceeds from sale of business	130,000	—
Purchases of property and equipment	(1,285)	(2,396)
Net cash provided by (used in) investing activities	36,716	(50,788)
Cash flows from financing activities:		
Proceeds from issuance of common stock in follow-on public offering, net of discounts and issuance costs	—	49,744
Proceeds from issuance of common stock pursuant to ATM financing, net of discounts and issuance costs	—	1,454
Proceeds from issuance of common stock from option exercises	1	145
Proceeds from issuance of common stock pursuant to employee stock purchase plan	595	826
Net cash provided by financing activities	596	52,169
Net change in cash, cash equivalents and restricted cash	(76,349)	(108,370)
Cash, cash equivalents and restricted cash, beginning of period	110,335	218,705
Cash, cash equivalents and restricted cash, end of period	$ 33,986	$ 110,335
Supplemental disclosures of noncash investing and financing activities:		
Cash paid for income taxes	$ 720	$ —
Reclassification of liability for common stock vested	$ —	$ 13
Property and equipment additions included in accounts payable	$ —	$ 241
Property and equipment additions included in accrued expenses and other liabilities	$ 8	$ 116
Unrealized loss on available for sale securities, net	$ (397)	$ (7)

See notes to consolidated financial statements.

HOMOLOGY MEDICINES, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share and per share amounts)

1. NATURE OF BUSINESS AND BASIS OF PRESENTATION

Nature of Business—Homology Medicines, Inc. (the "Company") is a clinical-stage genetic medicines company dedicated to transforming the lives of patients suffering from rare diseases by addressing the underlying cause of the disease with one-time gene therapy and gene editing treatments. The Company was founded in March 2015 as a Delaware corporation. Its principal offices are in Bedford, Massachusetts.

Since its inception, the Company has devoted substantially all of its resources to recruiting personnel, developing its technology platform and advancing its pipeline of product candidates through discovery, preclinical and clinical trials, developing and implementing manufacturing processes, building out manufacturing and research and development space, and maintaining and building its intellectual property portfolio. The Company is subject to a number of risks similar to those of other companies conducting high-risk, early-stage research and development of product candidates. Principal among these risks are dependency on key individuals and intellectual property, competition from other products and companies, and the technical and regulatory risks associated with the successful research, development and manufacturing of its product candidates. The Company's success is dependent upon its ability to continue to raise additional capital in order to fund ongoing research and development, conduct clinical trials, obtain regulatory approval of its products, further expand access to manufacturing capacity, successfully commercialize its products, generate revenue, meet its obligations, and, ultimately, attain sustainable profitable operations.

On March 10, 2022, the Company closed a transaction with Oxford Biomedica plc ("Oxford"), to establish a new adeno-associated virus ("AAV") vector manufacturing company, Oxford Biomedica (US) LLC ("OXB (US) LLC") that provides AAV vector process development and manufacturing services to biotechnology companies. Under the terms of the agreement, the Company contributed its manufacturing team of 125 employees, manufacturing facility and equipment, manufacturing-related intellectual property and know-how and certain other assets. Oxford paid the Company $130.0 million of upfront cash and invested $50.0 million of cash to fund OXB (US) LLC in exchange for an 80 percent ownership interest, while Homology retained a 20 percent ownership interest in the new company and received a put option on this ownership position (see Note 6).

On April 6, 2021, the Company completed a follow-on public offering of its common stock. The Company sold 6,596,306 shares of its common stock at a price of $7.58 per share and received net proceeds of $49.7 million, after deducting offering expenses of $0.3 million. Under the terms of the underwriting agreement, the Company also granted the underwriter an option exercisable for 30 days to purchase up to an additional 989,445 shares of its common stock at a price of $7.58 per share. The underwriters did not exercise this option. The offering closed on April 9, 2021. The shares were sold pursuant to the Company's effective shelf registration statement on Form S-3, as amended, and a related prospectus supplement filed with the Securities and Exchange Commission ("SEC") on April 8, 2021.

On March 12, 2020, the Company filed a Registration Statement on Form S-3 (File No. 333-237131) (as amended, the "Shelf") with the SEC in relation to the registration of common stock, preferred stock, debt securities, warrants and/or units of any combination thereof for a period up to three years from the date of the filing. The Shelf became effective on March 12, 2020. The Company also simultaneously entered into a sales agreement with Cowen and Company, LLC ("TD Cowen"), as sales agent, providing for the offering, issuance and sale by the Company of up to an aggregate of $150.0 million of its common stock from time to time in "at-the-market" offerings under the Shelf (the "ATM"). In connection with the filing of certain post-effective amendments to the Shelf, the sales agreement prospectus supplement now covers the offering, issuance and sale by the Company of up to an aggregate of $148.4 million of its common stock. The Company did not sell any

shares of common stock under the Sales Agreement during the during the year ended December 31, 2022. As of December 31, 2022, there remained $148.4 million of common stock available for sale under the ATM. The Shelf will expire and no longer be effective, and accordingly will not be available for use for ATM offerings under the Sales Agreement, after March 12, 2023.

To date, the Company has not generated any revenue from product sales and does not expect to generate any revenue from the sale of product in the foreseeable future. Through December 31, 2022, the Company has financed its operations primarily through public offerings of its common stock, the issuance of convertible preferred stock, and with proceeds from its from its transaction with Oxford (see Note 6), its collaboration and license agreement with Novartis Institutes of BioMedical Research, Inc. ("Novartis") (see Note 10) and its private placement with Pfizer (see Note 15). During the year ended December 31, 2022, the Company incurred a loss from operations of $133.3 million and as of December 31, 2022, had $429.1 million in accumulated deficit. The Company expects to incur additional operating losses and negative operating cash flows for the foreseeable future.

Based on current projections, management believes that cash and cash equivalents and short-term investments as of December 31, 2022 will enable the Company to continue its operations for at least one year from the date of this filing. In the absence of a significant source of recurring revenue, the continued viability of the Company beyond that point is dependent on its ability to continue to raise additional capital to finance its operations. There can be no assurance that the Company will be able to obtain sufficient capital to cover its costs on acceptable terms, if at all.

Basis of Presentation—The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") and have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation—The Company's consolidated financial statements include the accounts of the Company and its subsidiary, Homology Medicines Securities Corporation, a wholly owned Massachusetts corporation, for the sole purpose of buying, selling, and holding securities on the Company's behalf. All intercompany balances and transactions have been eliminated in the consolidated financial statements.

Use of Estimates—The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. The Company bases its estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. Significant estimates and assumptions reflected in these consolidated financial statements include, but are not limited to, revenue recognition, accrued research and development expenses and the valuation of the Company's equity method investment. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Comprehensive Income (Loss) —Comprehensive income (loss) is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. The Company's only element of other comprehensive income (loss) is unrealized gains and losses on available-for-sale investments.

Cash and Cash Equivalents and Restricted Cash—Cash and cash equivalents consist of standard checking accounts, money market accounts and certain investments. The Company considers all highly liquid investments with original or remaining maturities at the time of purchase of 90 days or less to be cash equivalents. Restricted cash consists of cash serving as collateral for letters of credit issued for security deposits for the Company's facility leases in Bedford, Massachusetts.

The following table provides a reconciliation of cash, cash equivalents and restricted cash to amounts shown in the consolidated statements of cash flows:

	December 31,	
	2022	2021
	(in thousands)	
Cash and cash equivalents	$ 33,986	$ 108,382
Restricted cash	—	1,953
Total cash, cash equivalents and restricted cash	$ 33,986	$ 110,335

Short-Term Investments—Short-term investments represent holdings of available-for-sale marketable securities in accordance with the Company's investment policy and cash management strategy. Short-term investments have maturities of greater than 90 days at the time of purchase and mature within one-year from the balance sheet date. Investments in marketable securities are recorded at fair value, with any unrealized gains and losses, reported within accumulated other comprehensive income as a separate component of stockholders' equity until realized or until a determination is made that an other-than-temporary decline in market value has occurred. Any premium or discount arising at purchase is amortized and/or accreted to interest income and/or expense over the life of the underlying security. Such amortization and accretion, together with interest on securities, are included in interest income in the Company's consolidated statements of operations. The cost of marketable securities sold is determined based on the specific identification method and any realized gains or losses on the sale of investments are reflected as a component of other income.

Concentrations of Credit Risk—Financial instruments that potentially subject the Company to significant concentration of credit risk consist primarily of cash, cash equivalents and short-term investments. Periodically, the Company may maintain deposits in financial institutions in excess of government insured limits. The Company believes that it is not exposed to significant credit risk as its deposits are held at financial institutions that management believes to be of high credit quality and the Company has not experienced any losses on these deposits. The Company regularly invest excess cash with major financial institutions in money market funds, U.S. government and corporate debt securities and commercial paper, all of which can be readily purchased and sold using established markets. As of December 31, 2022, the Company's cash and cash equivalents were held with two financial institutions. The Company believes that the market risk arising from its holdings of these financial instruments is mitigated based on the fact that many of these securities are either government-backed or of high credit rating.

Equity Method Investment—The Company uses the equity method of accounting to account for an investment in an entity that it does not control, but in which it has the ability to exercise significant influence over operating and financial policies. The Company's proportionate share of the net income or loss of the entity is included in consolidated net loss. Judgments regarding the level of influence over the equity method investment include consideration of key factors such as the Company's ownership interest, representation on the board of directors or other management body and participation in policy-making decisions.

Under the equity method of accounting, the Company's investment is initially recorded at fair value on the consolidated balance sheets. Upon initial investment, the Company evaluates whether there are basis differences between the carrying value and fair value of the Company's proportionate share of the investee's underlying net assets. Typically, the Company amortizes basis differences identified on a straight-line basis over the underlying assets' estimated useful lives when calculating the attributable earnings or losses, excluding the basis differences attributable to in-process research and development that has no alternative future use. If the Company is unable to attribute all of the basis differences to specific assets or liabilities of the investee, the residual excess of the cost of the investment over the proportional fair value of the investee's assets and liabilities is considered to be equity method goodwill and is recognized within the equity investment balance, which is tracked separately within the Company's memo accounts. The Company subsequently records in the statements of operations its

share of income or loss of the other entity within other income/expense, which results in an increase or decrease to the carrying value of the investment. If the share of losses exceeds the carrying value of the Company's investment, the Company will suspend recognizing additional losses and will continue to do so unless it commits to providing additional funding; however, if there are intra-entity profits this can cause the investment balance to go negative.

The Company evaluates its equity method investments for impairment whenever events or changes in circumstances indicate that a decline in value has occurred that is other than temporary. Evidence considered in this evaluation includes, but would not necessarily be limited to, the financial condition and near-term prospects of the investee, recent operating trends and forecasted performance of the investee, market conditions in the geographic area or industry in which the investee operates and the Company's strategic plans for holding the investment in relation to the period of time expected for an anticipated recovery of its carrying value. If the investment is determined to have a decline in value deemed to be other than temporary it is written down to estimated fair value.

At December 31, 2022, the Company accounted for its investment in OXB (US) LLC using the equity method of accounting (see Note 6).

Offering Costs—The Company capitalizes incremental legal, professional accounting and other third-party fees that are directly associated with equity financings as other current assets until the transactions are completed. After equity financings are complete, these costs are recorded in stockholders' equity as a reduction of additional paid-in capital generated as a result of the offering.

Leases— The Company determines if an arrangement is a lease at contract inception. The Company's contracts are determined to contain a lease when all of the following criteria based on the specific circumstances of the arrangement are met: (1) there is an identified asset for which there are no substantive substitution rights; (2) the Company has the right to obtain substantially all of the economic benefits from the identified asset; and (3) the Company has the right to direct the use of the identified asset.

At the commencement date, operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of future lease payments over the expected lease term. The Company's lease agreements do not provide an implicit rate. As a result, the Company utilizes an estimated incremental borrowing rate to discount lease payments, which is based on the rate of interest the Company would have to pay to borrow a similar amount on a collateralized basis over a similar term. Certain adjustments to the right-of-use asset may be required for items such as initial direct costs paid or lease incentives received. Operating lease cost is recognized over the expected term on a straight-line basis. The expected lease term includes noncancelable lease periods and, when applicable, periods covered by an option to extend the lease if the Company is reasonably certain to exercise that option, as well as periods covered by an option to terminate the lease if the Company is reasonably certain not to exercise that option. Variable lease cost is recognized as incurred. Right-of-use assets are periodically evaluated for impairment.

The Company acts as sublessor related to a sublease of a substantial portion of the Company's headquarters that is now occupied by OXB (US) LLC (see Note 16). Fixed sublease payments received are recorded as a reduction to lease cost. Although Homology assigned all of its right, title and interest in, to and under this lease to OXB (US) LLC, the Company remains jointly and severally liable for the payment of rent under this lease and was not released from being the primary obligor under such lease. Therefore, the related right-of-use asset and operating lease liability were not derecognized and remain on the Company's consolidated balance sheets.

Guarantees and Indemnifications—As permitted under Delaware law, the Company indemnifies its officers, directors, consultants and employees for certain events or occurrences that happen by reason of the relationship with, or position held at, the Company. Through December 31, 2022, the Company had not experienced any losses related to these indemnification obligations, and no claims were outstanding. The

Company does not expect significant claims related to these indemnification obligations and, consequently, concluded that the fair value of these obligations is negligible, and no related liabilities have been established.

Property and Equipment—Property and equipment are recorded at cost. Expenditures for repairs and maintenance are expensed as incurred. When assets are retired or disposed of, the assets and related accumulated depreciation are derecognized from the accounts, and any resulting gain or loss is included in the determination of net loss. Depreciation is provided using the straight-line method over the estimated useful lives of the related assets. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the asset.

Computer equipment and software	3 years
Laboratory equipment and office furniture	5 years
Manufacturing equipment	5 - 7 years
Leasehold improvements	Shorter of the lease term or estimated useful life

Assets Held for Sale—The Company classifies assets as held for sale when the following conditions are met: (1) management has committed to a plan to sell, (2) the assets are available for immediate sale in their present condition, (3) the Company has initiated an active program to identify a buyer, (4) it is probable that a sale will occur within one year, (5) the assets are actively marketed for sale at a reasonable price in relation to their current fair value, and (6) there is a low likelihood of significant changes to the plan or that the plan will be withdrawn. If all of the criteria are met as of the balance sheet date, the assets are presented separately in the consolidated balance sheet as held for sale at the lower of the carrying amount or fair value less costs to sell. The assets are then no longer depreciated or amortized while classified as held for sale.

Impairment of Long-Lived Assets—The Company evaluates its long-lived assets, which consist primarily of property and equipment and right-of-use assets, for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the asset exceeds the fair value of the asset. To date, no impairments have been recognized for these assets.

Research and Development Costs—Research and development costs are charged to expense as incurred. Research and development expense consists of expenses incurred in performing research and development activities, including salaries and benefits, materials and supplies, preclinical and clinical expenses, stock-based compensation expense, depreciation of equipment, contract services, and other outside expenses.

Costs for certain development activities are recognized based on an evaluation of the progress to completion of specific tasks using information provided to the Company by its vendors on their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the consolidated financial statements as prepaid expense or accrued research and development expense.

Income Taxes—The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the Company's consolidated financial statements and tax returns. Deferred tax assets and liabilities are determined based upon the differences between the financial statement carrying amounts and the tax bases of existing assets and liabilities and for loss and credit carryforwards, using enacted tax rates expected to be in effect in the year in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. The Company determines whether it is more likely than not that a tax position will be sustained upon examination. The tax benefit to be recognized for any tax position that meets the more-likely-

than-not recognition threshold is calculated as the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement. If it is not more likely than not that a position will be sustained, none of the benefit attributable to the position is recognized. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes. Since inception, the Company has provided a valuation allowance for the full amount of the net deferred tax assets as the realization of the net deferred tax assets has not been determined to be more likely than not.

Segment Information—Operating segments are identified as components of an enterprise about which separate discrete financial information is made available for evaluation by the chief operating decision maker ("CODM") in making decisions regarding resource allocation and assessing performance. The CODM is the Company's Chief Executive Officer. The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The Company's singular focus is dedicated to translating proprietary gene editing and gene therapy technology into novel treatments for patients with rare genetic diseases. All of the Company's tangible assets are held in the United States.

Revenue Recognition— Revenue is recognized in accordance with FASB Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). Under ASC 606, the Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, the Company performs the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the entity will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The promised goods or services in the Company's arrangements would likely consist of a license, rights to the Company's intellectual property or research, development and manufacturing services. Performance obligations are promised goods or services in a contract to transfer a distinct good or service to the customer and are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract. In assessing whether promised goods or services are distinct, the Company considers factors such as the stage of development of the underlying intellectual property, the capabilities of the customer to develop the intellectual property on its own or whether the required expertise is readily available and whether the goods or services are integral or dependent to other goods or services in the contract.

The Company estimates the transaction price based on the amount expected to be received for transferring the promised goods or services in the contract. The consideration may include fixed consideration and variable consideration. At the inception of each arrangement that includes variable consideration, the Company evaluates the amount of consideration to which the Company expects to be entitled to. The Company utilizes either the most likely amount method or expected value method to estimate the amount expected to be received based on which method best predicts the amount expected to be received. The amount of variable consideration that is included in the transaction price may be constrained and is included in the transaction price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period.

The Company's contracts may include development and regulatory milestone payments that are assessed under the most likely amount method and constrained until it is probable that a significant revenue reversal would not occur. Milestone payments that are not within the Company's control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. At the end of each reporting

period, the Company re-evaluates the probability of achievement of such development and regulatory milestones and any related constraint, and if necessary, adjust its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect collaboration revenue in the period of adjustment.

For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from the Company's collaboration arrangement.

The Company allocates the transaction price based on the estimated standalone selling price of each performance obligation. The Company must develop assumptions that require judgment to determine the stand-alone selling price for each performance obligation identified in the contract. The Company utilizes key assumptions to determine the stand-alone selling price, which may include other comparable transactions, pricing considered in negotiating the transaction and the estimated costs. Variable consideration is allocated specifically to one or more performance obligations in a contract when the terms of the variable consideration relate to the satisfaction of the performance obligation and the resulting amounts allocated are consistent with the amounts the Company would expect to receive for the satisfaction of each performance obligation.

The consideration allocated to each performance obligation is recognized as revenue when control is transferred for the related goods or services. For performance obligations which consist of licenses and other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress. The Company evaluates the measure of progress for its over-time arrangements at each reporting period and, if necessary, updates the measure of progress and revenue recognized.

Stock-based Compensation—The Company recognizes compensation expense for awards to employees and non-employees based on the grant date fair value of stock-based awards on a straight-line basis over the period during which an award holder provides service in exchange for the award. The fair value of options on the date of grant is calculated using the Black-Scholes option pricing model based on key assumptions such as stock price, expected volatility and expected term. The Company's estimates of these assumptions are primarily based on the trading price of the Company's stock, historical data, peer company data and judgment regarding future trends and factors. The Company recognizes forfeitures as they occur.

The purchase price of common stock under the Company's employee stock purchase plan ("ESPP") is equal to 85% of the lesser of (i) the fair market value per share of the common stock on the first business day of an offering period and (ii) the fair market value per share of the common stock on the purchase date. The fair value of the look-back provision under the ESPP is calculated using the Black-Scholes option pricing model. The fair value of the look-back provision plus the 15% discount is recognized as compensation expense over the 180-day purchase period.

Fair Value Measurements—Certain assets and liabilities are reported on a recurring basis at fair value. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

- Level 1—Quoted prices (unadjusted) in active markets for identical assets or liabilities.

- Level 2—Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

Net Loss per Share—Basic net loss per share is computed by dividing net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is computed using the weighted-average number of common shares outstanding during the period and, if dilutive, the weighted-average number of potential shares of common stock. The weighted-average number of common shares included in the computation of diluted net loss gives effect to all potentially dilutive common equivalent shares, including outstanding stock options, restricted stock units and unvested shares of common stock.

Common stock equivalent shares are excluded from the computation of diluted net loss per share if their effect is antidilutive. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is generally the same as basic net loss per share attributable to common stockholders, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Recent Accounting Pronouncements—The Jumpstart Our Business Startups Act of 2012 permits an emerging growth company to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. As an emerging growth company, the Company has elected to take advantage of this extended transition period.

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments ("ASU 2016-13") to improve financial reporting by requiring more timely recording of credit losses on loans and other financial instruments held by financial institutions and other organizations. ASU 2016-13 requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions and reasonable and supportable forecasts. ASU 2016-13 also requires enhanced disclosures to help investors and other financial statement users better understand significant estimates and judgments used in estimating credit losses, as well as the credit quality and underwriting standards of an organization's portfolio. The Company adopted ASU 2016-13 on January 1, 2023. The adoption of ASU 2016-13 did not have a material impact on the Company's consolidated financial statements and related disclosures.

3. CASH AND CASH EQUIVALENTS

From time to time, the Company may have cash balances in financial institutions in excess of federal deposit insurance limits. The Company has never experienced any losses related to these balances. The Company considers only those investments that are highly liquid, readily convertible to cash, and that mature within three months from date of purchase to be cash equivalents.

The following table summarizes the Company's cash and cash equivalents:

	December 31,	
	2022	2021
	(in thousands)	
Cash	$ 19	$ 59
Money market funds	33,967	108,323
Total cash and cash equivalents	$ 33,986	$ 108,382

4. SHORT-TERM INVESTMENTS

The Company may invest its excess cash in fixed income instruments denominated and payable in U.S. dollars including U.S. treasury securities, commercial paper, corporate debt securities and asset-backed securities in accordance with the Company's investment policy that primarily seeks to maintain adequate liquidity and preserve capital.

The following table summarizes the Company's short-term investments as of December 31, 2022 and December 31, 2021:

As of December 31, 2022	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
		(in thousands)		
Commercial paper	$ 57,138	$ —	$ —	$ 57,138
US Treasury securities	65,160	—	(335)	64,825
Corporate debt securities	19,146	—	(69)	19,077
Total	$141,444	$ —	$ (404)	$141,040

As of December 31, 2021	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
		(in thousands)		
Commercial paper	$ 27,992	$ —	$ —	$ 27,992
Corporate debt securities	19,506	—	(7)	19,499
Total	$ 47,498	$ —	$ (7)	$ 47,491

The Company utilizes the specific identification method in computing realized gains and losses. The Company had no realized gains and losses on its available-for-sale securities for the years ended December 31, 2022 and 2021. The contractual maturity dates of all of the Company's investments are less than one year.

5. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist of cash and cash equivalents, short-term investments, restricted cash and accounts payable. The carrying amount of cash, restricted cash and accounts payable are each considered a reasonable estimate of fair value due to the short-term maturity.

Assets measured at fair value on a recurring basis were as follows:

Description	December 31, 2022	Quoted Prices (Unadjusted) in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
		(in thousands)		
Cash equivalents:				
Money market mutual funds	$ 33,967	$ 33,967	$ —	$ —
Total cash equivalents	$ 33,967	$ 33,967	$ —	$ —
Short-term investments:				
Commercial paper	$ 57,138	$ —	$ 57,138	$ —
US Treasury securities	64,825	—	64,825	—
Corporate debt securities	19,077	—	19,077	—
Total short-term investments	$ 141,040	$ —	$ 141,040	$ —
Total financial assets	$ 175,007	$ 33,967	$ 141,040	$ —

Description	December 31, 2021	Quoted Prices (Unadjusted) in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
		(in thousands)		
Cash equivalents:				
Money market mutual funds	$ 108,323	$ 108,323	$ —	$ —
Total cash equivalents	$ 108,323	$ 108,323	$ —	$ —
Short-term investments:				
Commercial paper	$ 27,992	$ —	$ 27,992	$ —
Corporate debt securities	19,499	—	19,499	—
Total short-term investments	$ 47,491	$ —	$ 47,491	$ —
Total financial assets	$ 155,814	$ 108,323	$ 47,491	$ —

Short-term securities are valued using models or other valuation methodologies that use Level 2 inputs. These models are primarily industry-standard models that consider various assumptions, including time value, yield curve, volatility factors, default rates, current market and contractual prices for the underlying financial instruments, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

There were no transfers between fair value measurement levels during the years ended December 31, 2022 and 2021.

6. EQUITY METHOD INVESTMENT

Summary of Transaction

On March 10, 2022, the Company closed a transaction with OXB (US) LLC, Oxford Biomedica (US), Inc., ("OXB"), and Oxford, pursuant to the Equity Securities Purchase Agreement (the "Purchase Agreement"), dated as of January 28, 2022, by and among Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development and manufacturing services to pharmaceutical and biotechnology companies (the "OXB (US) LLC Transaction").

Pursuant to the terms of the Purchase Agreement and a contribution agreement (the "Contribution Agreement") entered into between Homology and OXB (US) LLC prior to the closing of the OXB (US) LLC Transaction (the "Closing"), Homology contributed its manufacturing team of 125 employees and assigned and transferred to OXB (US) LLC all of its assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy and gene editing products, including its manufacturing facility and equipment and manufacturing-related intellectual property and know-how, but excluding certain assets related to manufacturing or testing of Homology's proprietary AAV vectors (collectively, the "Transferred Assets"), in exchange for 175,000 common equity units in OXB (US) LLC ("Units"), representing 100 percent (100%) of the ownership interest of OXB (US) LLC, and OXB (US) LLC assumed from the Company, and agreed to pay, perform and discharge when due, all of the Company's duties, obligations, liabilities, interests and commitments of any kind under, arising out of or relating to the Transferred Assets.

Effective as of the Closing, Homology sold to OXB, and OXB purchased from Homology, 130,000 Units, (the "Transferred Units") in exchange for $130.0 million of cash consideration. In connection with the Closing, OXB contributed $50.0 million in cash to OXB (US) LLC in exchange for an additional, newly issued 50,000

Units. Immediately following the Closing, (i) OXB owned 180,000 Units, representing 80 percent (80%) of the fully diluted equity interests in OXB (US) LLC, and (ii) Homology owned 45,000 Units, representing 20 percent (20%) of the fully diluted equity interests in OXB (US) LLC.

Pursuant to the Amended and Restated Limited Liability Company Agreement of OXB (US) LLC (the "OXB (US) LLC Operating Agreement") which was executed in connection with the Closing, at any time following the three-year anniversary of the Closing, (i) OXB will have an option to cause Homology to sell and transfer to OXB, and (ii) Homology will have an option to cause OXB to purchase from Homology, in each case all of Homology's equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period (together, the "Options"), subject to a maximum amount of $74.1 million. Pursuant to the terms of the OXB (US) LLC Operating Agreement, Homology is entitled to designate one director to the board of directors of OXB (US) LLC, currently Albert Seymour, Homology's Chief Executive Officer. Further, Tim Kelly, Homology's former Chief Operating Officer, serves as the Chief Executive Officer and chairman of the board of OXB (US) LLC.

The fixed assets transferred to the new company as part of this transaction met the assets held for sale criteria and were reclassified to assets held for sale as of December 31, 2021. The Company determined that the carrying value of the assets held for sale did not exceed fair value less costs to sell, which resulted in no impairment charge for the year ended December 31, 2021. As of December 31, 2021, the Company presented $28.9 million of fixed assets transferred to OXB (US) LLC as a current asset under the caption of "assets held for sale" in its consolidated balance sheet.

Pursuant to the OXB (US) LLC Transaction, the Company also assigned all of its right, title and interest in, to and under its facility lease to the new company. However, as the Company remains jointly and severally liable for the payment of rent under the facility lease, the Company has not been released from being the primary obligor under such lease and therefore the related right-of-use asset and lease liability are not derecognized and will remain on the Company's balance sheet. The Company determined that the expected disposal of the fixed assets did not qualify for reporting as a discontinued operation since it did not represent a strategic shift that has or will have a major effect on the Company's operations and financial results.

Equity Method of Accounting

The Company has significant influence over, but does not control, OXB (US) LLC through its noncontrolling representation on OXB's board of directors and the Company's equity interest in OXB (US) LLC. In addition, the Company and OXB (US) LLC have intra-entity transactions through a series of agreements entered into in conjunction with the OXB (US) LLC Transaction, OXB (US) LLC granted certain licenses to the Company, and the Company has representation on the joint steering committee which oversees the activities governed by the Supply Agreement. Accordingly, the Company does not consolidate the financial statements of OXB (US) LLC and accounts for its investment using the equity method of accounting.

The Company recorded its equity method investment in OXB (US) LLC at fair value upon deconsolidation of OXB (US) LLC as of the Closing. The fair value of the equity method investment was determined based on the market approach. This approach estimated the fair value of OXB (US) LLC based on the implied value for the entity using the consideration paid, including the Options, for a controlling interest in OXB (US) LLC at the entity's formation. As part of its fair value analysis, the Company determined that the Options are embedded in the common equity units because the Options are not legally detachable or separately exercisable. Accordingly, the equity method investment and the Options represent one unit of account and the fair value recorded reflects the value of the equity interest and the Options. The valuation included certain subjective assumptions including discounts for lack of control and marketability given the consideration paid for OXB (US) LLC was for a controlling interest in the entity and the Company owns a noncontrolling interest.

As of March 10, 2022, the Closing, the fair value of the Company's investment in OXB (US) LLC was $31.2 million and the Company recorded a gain of $131.2 million on the sale of its manufacturing business in other income in the Company's consolidated statements of operations. The gain was computed as follows:

(in thousands)	March 10, 2022
Cash received	$ 130,000
Plus: Fair value of equity method investment	31,223
Less: Carrying value of transferred assets	(29,974)
Gain on sale of business	$ 131,249

In addition, the Company records its share of income or losses from OXB (US) LLC on a quarterly basis. For the year ended December 31, 2022, the Company recorded $5.5 million representing its share of OXB (US) LLC's net loss. As of December 31, 2022, the carrying value of the equity method investment was $25.8 million.

Summarized Financial Information

Summarized financial information for OXB (US) LLC is as follows:

Balance Sheet Data	December 31, 2022 (in thousands)
Current assets	$ 39,237
Noncurrent assets	$ 228,745
Current liabilities	$ 12,352
Noncurrent liabilities	$ 37,718

Statement of Operations Data	December 31, 2022 (in thousands)
Revenues	$ 29,380
Net loss	$ 29,036

See Note 16 for information regarding the Company's related party transactions with OXB (US) LLC.

7. PROPERTY AND EQUIPMENT

Property and equipment, net consists of the following:

	December 31,	
	2022	2021
	(in thousands)	
Laboratory equipment	$ 6,025	$ 5,857
Computers and purchased software	644	1,596
Furniture and fixtures	645	645
Property and equipment, at cost	7,314	8,098
Less accumulated depreciation and amortization	(6,236)	(5,846)
Property and equipment, net	$ 1,078	$ 2,252

Depreciation expense for the years ended December 31, 2022 and 2021 was approximately $1.3 million and $8.4 million, respectively. The Company disposed of approximately $0.1 million of property and equipment, net during each of the years ended December 31, 2022 and 2021. As of December 31, 2021, the Company has classified an additional $28.9 million of property and equipment, net in assets held for sale (see Note 6).

8. ACCRUED EXPENSES AND OTHER LIABILITIES

Accrued expenses and other liabilities consist of the following:

	December 31,	
	2022	2021
	(in thousands)	
Accrued research and development expenses	$ 9,447	$ 2,193
Accrued compensation and benefits	5,953	7,805
Accrued professional fees	1,052	1,371
Accrued other	2,263	37
Total accrued expenses and other liabilities	$ 18,715	$ 11,406

9. COMMITMENTS AND CONTINGENCIES

Operating Leases—In September 2016, the Company entered into a noncancelable operating lease beginning in November 2016 for office, laboratory and manufacturing space in Bedford, Massachusetts, that expired in October 2021, with an option for an additional three-year term that was not exercised. In 2018, the Company entered into a sublease agreement for the entire leased premises. The rent commencement date of the sublease was December 2018, and the sublease terminated on the scheduled termination date of the original lease. Under the terms of the sublease, the subtenant was obligated to pay the Company aggregate base rent of approximately $2.7 million over the term of the sublease, based on the same level of rent the Company was obligated to pay the landlord, in addition to a passthrough of operating expenses and real estate taxes charged by the landlord.

In December 2017, the Company entered into a noncancelable operating lease for approximately 67,000 square feet of research and development, manufacturing and general office space in Bedford, Massachusetts. Prior to a subsequent amendment described below, the lease was set to expire in February 2027 with an option for an additional five-year term. Rent became due under the lease in two phases; rent on the first 46,000 square feet started in September 2018 and rent on the remaining 21,000 square feet started in March 2019. The initial annual base rent was $39.50 per square foot and increases by three percent annually. The Company is obligated to pay, on a pro-rata basis, real estate taxes and operating costs related to the premises. The lease agreement entered into in December 2017 allowed for a tenant improvement allowance not to exceed $10.9 million, which the Company received in full, to be applied to the total cost of tenant improvements to the leased premises. The unamortized balance of the tenant improvement allowance was included in deferred rent incentives and has been recorded as a reduction to operating right-of-use asset upon adoption of the new leasing standards.

In November 2021, the Company entered into an amendment of its December 2017 lease agreement (the “Lease Amendment”) for its corporate headquarters in Bedford, Massachusetts. The Lease Amendment increases the space under lease by approximately 23,011 square feet (the “Expansion Premises”) and extended the expiration date of the existing premises under the lease from February 2027 to June 2030. The payment term with respect to the Expansion Premises commences on the earlier of (i) the date of the Substantial Completion of the Tenant’s Work (as both terms are defined in the Lease Amendment), (ii) the Company’s occupancy of any portion of the Expansion Premises, and (iii) May 1, 2022, and continues for a period of ten years and five months. The term of the Expansion Premises and the existing premises are not coterminous. Annual base rent for the existing premise under the Lease Amendment is approximately $4.7 million beginning on March 1, 2027, and increases by three percent annually; annual base rent for the Expansion Premises is approximately $1.4 million per year and increases by three percent annually. The Lease Amendment allows for tenant improvement allowances not to exceed $6.3 million in the aggregate. The Lease Amendment was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $10.9 million to both the right-of-use asset and operating lease liabilities. In February 2022, the Company revised its assumption for when it expects to utilize the tenant

improvement allowances. This change in assumption was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $0.2 million to both the right-of-use asset and operating lease liabilities.

In March 2022, in accordance with its transaction with OXB (US) LLC, the Company assigned all of its right, title and interest in, to and under its corporate headquarters lease to OXB (US) LLC and entered into a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology. However, as the Company has not been released from being the primary obligor under such lease, the related right-of-use asset and operating lease liability were not derecognized and remain on the Company's balance sheet and the Company acts as sublessor to OXB (US) LLC for accounting purposes. See Note 6 for details. For the year ended December 31, 2022, the Company received $2.0 million in sublease payments from OXB (US) LLC, which is recorded as a reduction to lease cost.

In September 2022, the Company concluded that 100% of the tenant improvement allowances would be utilized by OXB (US) LLC. This change in assumption was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $6.1 million to both the right-of-use asset and operating lease liabilities.

The Company maintained letters of credit, secured by restricted cash, for security deposits totaling $2.0 million as of December 31, 2021 in conjunction with its leases. The Company had no security deposit or restricted cash as of December 31, 2022.

The following table summarizes operating lease costs and variable lease costs, as well as sublease income for the year ended December 31, 2022:

	Years ended December 31,	
	2022	2021
	(in thousands)	
Operating lease costs	$ 3,913	$ 2,592
Variable lease costs	2,142	2,127
Sublease income	(1,979)	(861)
Net lease cost	$ 4,076	$ 3,858

The maturities of our operating lease liabilities as of December 31, 2022 were as follows:

For the Years Ending December 31,	Amount (in thousands)
2023	4,444
2024	4,578
2025	4,715
2026	4,857
Thereafter	26,266
Total undiscounted lease payments	$ 44,860
Less: imputed interest	(15,383)
Present value of operating lease liabilities	$ 29,477

The following table summarizes the lease term and discount rate as of December 31, 2022:

	As of December 31, 2022
Weighted-average remaining lease term (years)	
Operating leases	8.2
Weighted-average discount rate	
Operating leases	10.6%

The following table summarizes the supplemental cash flow information related to the Company's operating leases for the year ended December 31, 2022.

	Years ended December 31, 2022	2021
	(in thousands)	
Cash paid for amounts included in the measurement of lease liabilities	$ 3,326	$ 3,810
Increase in lease liabilities and right-of-use assets due to lease remeasurement	$ 6,262	$ 10,901

Legal Proceedings—On March 25, 2022, the Company and certain of its executives were named as defendants in a putative securities class action lawsuit filed in the United States District Court for the Central District of California; Pizzuto v. Homology Medicines, Inc., No. 2:22–CV–01968 (C.D. Cal 2022). The complaint alleges that the Company failed to disclose certain information regarding efficacy and safety in connection with a Phase I/II HMI-102 clinical trial, and seeks damages in an unspecified amount. The case is in its early stages. The Company believes the claims alleged lack merit and has filed a motion to transfer venue (filed September 2, 2022) and a motion to dismiss (filed October 17, 2022). Both of these motions remain pending. As the outcome is not presently determinable, any loss is neither probable nor reasonably estimable.

10. LICENSE AGREEMENTS

Novartis

In November 2017, the Company entered into a collaboration and license agreement with Novartis (as amended, the "Collaboration Agreement") for the research, development, manufacturing and commercialization of products using the Company's gene-editing technology for the treatment of certain ophthalmic targets and sickle cell disease. On February 26, 2021, Homology received notice from Novartis that they had elected to terminate the Collaboration Agreement with the Company with respect to the remaining ophthalmic target under the Collaboration Agreement and as a result, the Company regained worldwide exclusive rights to this target. Accordingly, the notice served as notice of Novartis' termination of the Collaboration Agreement in its entirety, which became effective on August 26, 2021.

The Company recognized revenue under the Collaboration Agreement over time using a cost-to-cost method, which it believed best depicted the transfer of control to the customer. The delivery of the termination notice caused a change in the estimate of total costs to satisfy the single performance obligation under the Collaboration Agreement. The cumulative effect of revisions to the total estimated costs to complete the Company's single performance obligation was recorded in the current period when the changes were identified and amounts could be reasonably estimated. As such, the Company recognized a cumulative effect adjustment of approximately $26.9 million in collaboration revenue during the year ended December 31, 2021.

As the Collaboration Agreement terminated in 2021, there was no revenue recorded in the year ended December 31, 2022. During the year ended December 31, 2021, the Company recognized revenue under the Collaboration Agreement of $30.8 million, of which $30.2 million was included in deferred revenue at the

beginning of 2021. As of December 31, 2022 and 2021, there was no deferred revenue related to the Collaboration Agreement. There was no accounts receivable or deferred revenue on the Company's consolidated balance sheets related to the Collaboration Agreement in either period presented.

City of Hope

In April 2016, the Company entered into an exclusive license agreement with City of Hope, or COH, an academic research and medical center. COH granted the Company an exclusive, sublicensable, worldwide license, or the COH License, to certain AAV vector-related patents and know-how owned by COH to develop, manufacture, use and commercialize products and services covered by such patents and know-how in any and all fields.

The Company is required to pay an annual license fee of $25,000, reimburse COH for patent costs incurred, pay amounts up to $3.2 million upon the achievement of certain development and commercialization milestones for each product under the license, pay royalties on future sales in the low single-digits and royalties on sublicense revenue in the low double-digits, if any. Other than the annual license fee, there were no payments to COH in 2021 or 2022. In January 2023, the Company paid $50,000 to COH upon dosing the first patient in the pheEDIT Phase 1 clinical trial.

On August 6, 2021, the Company received notice from COH that it did not accomplish at least one of the partnering milestones by the applicable deadline, as set forth in the COH License. This notice does not affect the Company's exclusive license in the field of mammalian therapeutics, including all human therapeutics, associated diagnostics, and target validation, or the Mammalian Therapeutic Field, where the Company retains exclusive rights. Instead, the notice served as written notice that the exclusive license granted pursuant to the COH License in all fields except the Mammalian Therapeutic Field converted from exclusive to non-exclusive effective as of September 20, 2021, which was forty-five days from the receipt of notice. In connection with the conversion, any royalty obligations and sublicensee fees relating to fields outside of the Mammalian Therapeutic Field shall be reduced by a certain percentage. This change to the Company's exclusive worldwide license with COH does not impact any of its current therapeutic product candidates in development, including HMI-102, HMI-103, HMI-203, HMI-204 and HMI-104, nor will it impact any potential future therapeutic product development candidates.

California Institute of Technology

In September 2016, the Company entered into a co-exclusive license agreement with the California Institute of Technology ("Caltech"), an academic research institute. The license term extends until the expiration, revocation, invalidation or unenforceability of the licensed patent rights. The Company is required to pay an annual minimal royalty fee of $20,000, reimburse for patent costs incurred, pay an amount up to $7.2 million upon the achievement of certain development and regulatory milestones and pay royalties on future sales in the low single-digits and royalties on sublicense revenue in the mid to high single-digits, if any. As of the date of this Annual Report, the Caltech technology is not utilized in any of the Company's current therapeutic product candidates in development and the Company's ongoing efforts with respect to the Caltech agreement are primarily focused on sublicensing the AAV-related patents owned by Caltech.

11. INCOME TAXES

Provision for income taxes consists of the following:

	For the Year Ended December 31,	
	2022	2021
	(in thousands)	
Federal tax provision:		
Current	$ 698	$ —
Deferred	—	—
Total federal tax provision	698	—
State tax provision:		
Current	17	—
Deferred	—	—
Total state tax provision	17	—
Total tax provision	$ 715	$ —

A reconciliation between the U.S. federal statutory tax and the Company's tax provision is summarized below. The Company has changed the presentation of its rate reconciliation from percentages to dollar amounts in the current year.

	For the Year Ended December 31,	
	2022	2021
	(in thousands)	
Federal statutory tax	$ (901)	$ (20,111)
Tax credits	(13,955)	(8,940)
State taxes, net of federal tax benefit	(2,994)	(8,240)
Non-deductible expenses	875	1,331
Other	1,410	(2,401)
Change in valuation allowance	16,280	38,361
Tax provision	$ 715	$ —

The principal components of the Company's deferred tax assets and liabilities consist of the following:

	December 31,	
	2022	2021
	(in thousands)	
Deferred tax assets:		
Net operating losses	$ 76,735	$100,417
R&D credits	66,761	51,705
Equity compensation	7,888	6,919
Operating lease liabilities	8,003	6,520
Accrued expense and other	1,479	2,072
Deferred revenue	314	1,189
Capitalized R&D costs	24,477	868
Total deferred tax assets	185,657	169,690

	December 31,	
	2022	2021
	(in thousands)	
Deferred tax liabilities:		
Right-of-use assets	(5,583)	(4,252)
Depreciation	(171)	(1,541)
Other	(251)	(503)
Total deferred tax liabilities	(6,005)	(6,296)
Valuation allowance	(179,652)	(163,394)
Net deferred taxes	$ —	$ —

The Company recorded an income tax provision of $0.7 million for the year ended December 31, 2022. The year-to-date tax provision predominately results from the gain associated with the sale of the Company's manufacturing business due to the transaction with Oxford (see Note 6), offset by available federal and state net operating loss carryforwards and research and development tax credits which are subject to certain limitations as to their utilization. The Company did not record an income tax provision (benefit) for the year ended December 31, 2021.

At December 31, 2022, the Company had $283.5 million and $272.1 million of federal and state net operating loss carryforwards, respectively. Federal net operating loss carryforwards of $0.4 million, generated before 2018, will begin expiring in varying amounts through 2035 unless utilized. The remaining federal net operating loss carryforwards of $283.1 million, generated after 2017, will be carried forward indefinitely. The state net operating losses will begin expiring in varying amounts through 2041 unless utilized. At December 31, 2022, the Company had $55.1 million and $14.8 million of federal and state research and development credit carryforwards, respectively, that expire at various dates through 2041. Included in the $55.1 million of federal research and development credit carryforwards is $45.2 million of orphan drug credit carryforwards.

A valuation allowance is recorded against deferred tax assets if it is more likely than not that some or all of the deferred tax assets will not be realized. Due to the uncertainty surrounding the realization of the favorable tax attributes in future tax returns, the Company has recorded a full valuation allowance against the Company's otherwise recognizable net deferred tax assets. A roll forward of the valuation allowance is as follows:

	Valuation Allowance
	(in thousands)
Balance at December 31, 2021	$ (163,394)
Utilization of net operating losses against taxable income	23,654
Increase in net deferred taxes	(39,912)
Balance at December 31, 2022	$ (179,652)

For all years through December 31, 2022, the Company generated research credits but has not conducted a study to document the qualified activities. This study may result in an adjustment to the Company's research and development credit carryforwards. Since a full valuation allowance has been provided against the Company's research and development credits, any reduction in the gross deferred tax asset established for the research and development credit carryforwards would not result in any net impact to the Company's consolidated financial statements.

Realization of the future tax benefits is dependent on many factors, including the Company's ability to generate taxable income within the net operating loss carryforward period. Under the provisions of the Internal Revenue Code, certain substantial changes in the Company's ownership, including a sale of the Company or significant changes in ownership due to sales of equity, may have limited, or may limit in the future, the amount of net operating loss carryforwards that could be used annually to offset future taxable income. The Company completed a study to assess ownership changes through December 31, 2022. Based on this analysis, the net operating losses are limited but the Company does not believe that any of its net operating losses or research and development credit carryforwards will expire unutilized due to Section 382 limitations.

The Company files tax returns in the United States, Massachusetts and several other states. All tax years since inception remain open to examination by the major taxing jurisdictions to which the Company is subject, as carryforward attributes generated in years past may still be adjusted upon examination by the Internal Revenue Service ("IRS") or other authorities if they have or will be used in a future period. The Company is not currently under examination by the IRS or any other jurisdictions for any tax years.

As of December 31, 2022, the Company had no uncertain tax positions. The Company has elected to recognize interest and penalties related to income tax matters as a component of income tax expense, of which no interest or penalties were recorded for the years ended December 31, 2022 and 2021.

12. STOCKHOLDERS' EQUITY

Common Stock—Voting, dividend and liquidation rights of the holders of the common stock are subject to and qualified by the rights, powers and preferences of the holders of the preferred stock.

Voting—Each holder of outstanding shares of common stock are entitled to one vote in respect of each share. The holders of outstanding shares of common stock, voting together as a single class, shall be entitled to elect one director. The number of authorized shares of common stock may be increased or decreased by the affirmative vote of a majority of the outstanding shares of common stock and preferred stock voting together as a single class.

Dividends—Subject to the payment in full of any preferential dividends to which the holders of preferred stock are entitled, the holders of common stock shall be entitled to receive dividends out of funds legally available therefore at such times and in such amounts as the Board of Directors may determine in its sole discretion.

Liquidation Rights—In the event of any voluntary or involuntary liquidation, dissolution or winding-up of the Company, after the payment or provision for payment of all debts and liabilities of the Company and any preferential amounts to which the holders of preferred stock are entitled with respect to the distribution of assets in liquidation, the holders of common stock shall be entitled to share ratably in the remaining assets of the Company available for distribution.

There were 57,483,910 and 57,150,274 shares of common stock outstanding at December 31, 2022 and 2021, respectively.

Preferred Stock—As of December 31, 2022 and 2021, there were no shares of preferred stock issued and outstanding.

13. STOCK INCENTIVE PLANS

2015 Stock Incentive Plan

In December 2015, the Company's Board of Directors adopted the 2015 Stock Incentive Plan (the "2015 Plan"), which provided for the grant of incentive stock options, nonqualified stock options and restricted stock awards to the Company's employees, officers, directors, advisors, and outside consultants. Stock options granted under the 2015 Plan generally vest over a four-year period and expire ten years from the date of grant. Certain options provide for accelerated vesting if there is a change in control, as defined in the 2015 Plan. At December 31, 2022, there were no additional shares available for future grant under the 2015 Plan.

2018 Incentive Award Plan

In March 2018, the Company's Board of Directors adopted and the Company's stockholders approved the Homology Medicines, Inc. 2018 Incentive Award Plan (the "2018 Plan" and, together with the 2015 Plan, the "Plans"), which became effective on the day prior to the first public trading date of the Company's common stock. Upon effectiveness of the 2018 Plan, the Company ceased granting new awards under the 2015 Plan.

The 2018 Plan provides for the grant of incentive stock options, nonqualified stock options, restricted stock awards, restricted stock units, stock appreciation rights and other stock or cash-based awards to employees and consultants of the Company and certain affiliates and directors of the Company. The number of shares of common stock initially available for issuance under the 2018 Plan was 3,186,205 shares of common stock plus the number of shares subject to awards outstanding under the 2015 Plan that expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by the Company on or after the effective date of the 2018 Plan. In addition, the number of shares of common stock available for issuance under the 2018 Plan is subject to an annual increase on the first day of each calendar year beginning on January 1, 2019 and ending on and including January 1, 2028 equal to the lesser of (i) 4% of the Company's outstanding shares of common stock on the final day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as determined by the Company's Board of Directors, provided that not more than 20,887,347 shares of common stock may be issued under the 2018 Plan upon the exercise of incentive stock options. As of December 31, 2022, there were 2,188,360 shares available for future grant under the 2018 Plan. On January 1, 2023, an additional 2,299,356 shares were added to the 2018 Plan, representing 4% of total common shares outstanding at December 31, 2022.

2018 Employee Stock Purchase Plan

In March 2018, the Company's Board of Directors adopted, and the Company's stockholders approved, the Homology Medicines, Inc. 2018 Employee Stock Purchase Plan (the "2018 ESPP"). The 2018 ESPP allows employees to buy Company stock through after-tax payroll deductions at a discount from market value. The 2018 ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Internal Revenue Code. The number of shares of common stock initially available for issuance under the 2018 ESPP was 353,980 shares of common stock plus an annual increase on the first day of each calendar year beginning on January 1, 2019 and ending on and including January 1, 2028 equal to the lesser of (i) 1% of the Company's outstanding shares of common stock on the final day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as determined by the Company's Board of Directors, provided that not more than 4,778,738 shares of common stock may be issued under the 2018 ESPP. As of December 31, 2022, there were 1,776,431 shares available for future grant under the 2018 ESPP. On January 1, 2023, an additional 574,839 shares were added to the 2018 ESPP, representing 1% of total common shares outstanding at December 31, 2022.

Under the 2018 ESPP, employees may purchase common stock through after-tax payroll deductions at a price equal to 85% of the lower of the fair market value on the first trading day of an offering period or the last trading day of an offering period. The 2018 ESPP generally provides for offering periods of six months in duration that end on the final trading day of each February and August. In accordance with the Internal Revenue

Code, no employee will be permitted to accrue the right to purchase stock under the 2018 ESPP at a rate in excess of $25,000 worth of shares during any calendar year during which such a purchase right is outstanding (based on the fair market value per share of the Company's common stock as of the first day of the offering period).

During the year ended December 31, 2022, 226,453 shares were issued under the 2018 ESPP for aggregate proceeds to the Company of $0.6 million. During the year ended December 31, 2021, 110,923 shares were issued under the 2018 ESPP for aggregate proceeds to the Company of $0.8 million. Pursuant to the 2018 ESPP, the Company recorded stock-based compensation of less than $0.1 million and $0.1 million for the years ended December 31, 2022 and 2021, respectively.

Stock Options

The fair value of each option award is estimated on the date of grant using the Black-Scholes option-pricing model, with the assumptions noted in the table below. Expected volatility for the Company's common stock was determined based on an average of the historical volatility of a peer group of publicly traded companies that are similar to the Company. The expected term of options was calculated using the simplified method, which represents the average of the contractual term of the option and the weighted-average vesting period of the option. The Company uses the simplified method because it does not have sufficient historical option exercise data to provide a reasonable basis upon which to estimate expected term. The assumed dividend yield is based upon the Company's expectation of not paying dividends in the foreseeable future. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods commensurate with the expected term of the award. The Company recognizes forfeitures as they occur.

The assumptions used in the Black-Scholes option pricing model are as follows:

	For the Year Ended December 31,	
	2022	2021
Expected volatility	68.7% - 70.1%	64.6% - 71.7%
Weighted-average risk-free interest rate	1.46% - 4.16%	0.50% - 1.33%
Expected dividend yield	— %	— %
Expected term (in years)	5.5 - 6.25	5.5 - 6.25
Underlying common stock fair value	$1.40 - $4.17	$4.85 - $13.91

A summary of option activity under the Plans during the year ended December 31, 2022 is as follows:

	Number of Options	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2022	7,624,306	$ 14.25	7.5	$ 2,069
Granted	3,089,655	$ 2.64		
Exercised	(293)	$ 2.71		
Cancelled/Forfeited	(847,934)	$ 10.25		
Outstanding at December 31, 2022	9,865,734	$ 10.96	7.2	$ 493
Vested and expected to vest at December 31, 2022	9,865,734	$ 10.96	7.2	$ 493
Exercisable at December 31, 2022	6,111,596	$ 13.19	6.3	$ 493

The total intrinsic value of options exercised during the year ended December 31, 2022 and 2021 was immaterial and $0.6 million, respectively. The weighted-average grant date fair value of options granted during the years ended December 31, 2022 and 2021 was $1.68 and $7.26, respectively.

Stock Awards Modifications

As part of the transaction with OXB (US) LLC (see Note 6), the Company transferred employees to OXB (US) LLC and modified approximately 1.6 million existing stock options and approximately 0.1 million existing restricted stock units granted to these transferred employees in prior periods in order to permit such individuals to continue vesting in their awards and exercise their vested options as long as they are employed by and provide services to OXB (US) LLC. The modification of the unvested stock awards to continue vesting was accounted for as a Type III (improbable to probable) modification under FASB ASC Topic 718, *Compensation—Stock Compensation* ("ASC 718"). Accordingly, the Company reversed all compensation cost previously recorded on the awards that were not expected to vest under the original terms. Total compensation cost reversed in the year ended December 31, 2022 was less than $0.1 million. Total compensation cost of $0.8 million, equal to the modification date fair value, will be recognized over the remaining service period. A portion of this total compensation cost will be included as a component of the loss from equity method investment.

The modification of the vested stock awards to permit transferred employees to exercise their options over the remaining life of the award, rather than the 90-day window for terminated employees, was accounted for as a modification under ASC 718. Accordingly, the Company recognized incremental compensation cost on the modification date in an amount equal to the difference between the fair value of the awards before and after modification. The fair value of the awards immediately before modification assumed a 90-day expected term, whereas the fair value immediately after assumed an expected term equal to the remaining life of the modified options. Total incremental compensation cost recognized in the year ended December 31, 2022 related to awards that were vested as of the modification date was $0.4 million.

Restricted Stock Units

The fair value of restricted stock units ("RSUs") is based on the fair market value of the Company's common stock on the date of grant. Each RSU represents a contingent right to receive one share of the Company's common stock upon vesting. In general, RSUs vest annually in two or three equal installments on January 1st of each year after the grant date. The following table summarizes the Company's RSU activity for the year ended December 31, 2022:

	Number of Restricted Stock Units	Weighted-Average Grant Date Fair Value
Outstanding at January 1, 2022	307,600	$ 12.75
Granted	400,495	$ 2.70
Vested	(106,890)	$ 12.42
Forfeited	(58,026)	$ 6.05
Outstanding at December 31, 2022	543,179	$ 6.12

Stock-based Compensation Expense

The Company recognizes compensation expense for awards to employees based on the grant date fair value of stock-based awards on a straight-line basis over the period during which an award holder provides service in

exchange for the award, which is generally the vesting period. The Company recorded stock-based compensation expense related to stock options, shares purchased under the 2018 ESPP and restricted stock units as follows:

	For the Year Ended December 31,	
	2022	2021
	(in thousands)	
General and administrative	$ 7,867	$ 8,450
Research and development	5,187	8,795
	$ 13,054	$ 17,245

As of December 31, 2022, there was $14.6 million of unrecognized compensation expense related to unvested employee and non-employee share-based compensation arrangements granted under the Plans. The unrecognized compensation expense is estimated to be recognized over a period of 2.3 years at December 31, 2022.

14. DEFINED CONTRIBUTION PLAN

The Company has a 401(k) defined contribution plan (the "401(k) Plan") for all of its employees. Eligible employees may make pretax contributions to the 401(k) Plan up to statutory limits, while the Company contributes to the plan at the discretion of the Board of Directors. The Company's discretionary match made under the 401(k) Plan for the years ended December 31, 2022 and 2021 was $0.6 million and $0.8 million, respectively.

15. PFIZER STOCK PURCHASE AGREEMENT

On November 9, 2020, the Company entered into a common stock purchase agreement (the "Stock Purchase Agreement") with Pfizer Inc. ("Pfizer"), pursuant to which the Company agreed to issue and sell to Pfizer 5,000,000 shares of the Company's common stock through a private placement transaction (the "Private Placement") at a purchase price of $12.00 per share, for an aggregate purchase price of $60.0 million. The shares of common stock sold to Pfizer were subject to a one-year lock-up from closing, during which time Pfizer was prohibited from selling or otherwise disposing of such shares.

Under the Stock Purchase Agreement, Pfizer was granted an exclusive right of first refusal (the "ROFR") for a 30-month period (the "ROFR Period") beginning on the date of the closing of the Private Placement (collectively, the "ROFR Provision"), to negotiate a potential collaboration on the development and commercialization of HMI-102 and HMI-103. Pfizer may exercise its right of first refusal under the ROFR Provision one time for each of HMI-102 and HMI-103 during the ROFR period. In addition to the ROFR, the Stock Purchase Agreement provides for an information sharing committee (the "Information Committee"), comprised of representatives of each company which will serve as a forum for sharing information regarding the development of HMI-102 and HMI-103 during the ROFR Period.

The Company recorded the issuance of common stock at its estimated fair value of $52.0 million, which reflects a discount for the lack of marketability of the shares. The remaining $8.0 million of aggregate purchase price was allocated to the other elements of the Stock Purchase Agreement, which represent a contract with a customer. The Company concluded that the Information Committee represents the only performance obligation under the contract. The ROFR does not provide Pfizer with a material right and is therefore not a performance obligation. As such, the Company allocated the $8.0 million to the Information Committee obligation.

The Company recognizes revenue over time as the measure of progress which it believes best depicts the transfer of control to Pfizer. The Information Committee will meet regularly over the ROFR Period to share information which results in recognition of the transaction price over the 30-month ROFR Period.

The Company recognized collaboration revenue of $3.2 million during each of the years ended December 31, 2022 and 2021. As of December 31, 2022 and 2021, there was approximately $1.2 million and $4.4 million of deferred revenue related to the Company's obligation to Pfizer, respectively.

16. RELATED PARTY TRANSACTIONS

Oxford Biomedica (US) LLC

As described in Note 6, the Company has significant influence over, but does not control, OXB (US) LLC through its noncontrolling representation on OXB (US) LLC's board of directors and the Company's equity interest in OXB (US) LLC. In March 2022, concurrently with the closing of the transaction with OXB (US) LLC, the Company entered into certain ancillary agreements with OXB (US) LLC including a supply agreement, a lease assignment and assumption agreement, a sublease agreement and a transitional services agreement.

Supply Agreement

Pursuant to the terms of the Manufacturing and Supply Agreement with OXB (US) LLC entered into in March 2022 (the "Supply Agreement"), the Company has agreed to purchase from OXB (US) LLC at least 50% of its clinical supply requirements of AAV-based products during the initial term of the supply agreement. The Supply Agreement will provide for an initial term of three years, which may be extended for an additional one-year term. Under the Supply Agreement, the Company is committed to purchase a minimum number of batches of drug substance and drug product, as well as process development services, totaling approximately $29.7 million in 2023. There are no minimum purchase commitments in 2024 (year three) of the Supply Agreement. After the initial term, the Company will have the right to terminate the Supply Agreement for convenience or other reasons specified in the Supply Agreement upon prior written notice. Either party may terminate the Supply Agreement upon an uncured material breach by the other party or upon the bankruptcy or insolvency of the other party.

During the year ended December 31, 2022, the Company recorded purchases of drug substance from OXB (US) LLC related to the Supply Agreement of approximately $13.9 million, purchases of process development services of approximately $12.5 million and stability and other support of approximately $1.8 million. These amounts are included within research and development expenses on the Company's consolidated statements of operations. As of December 31, 2022, the amount due to OXB (US) LLC under the Supply Agreement was $5.2 million and was included in accrued expenses and other liabilities on the Company's consolidated balance sheets.

Lease Assignment and Sublease Agreement

As described in Note 9, the Company leases space for research and development, manufacturing and general office space in Bedford, Massachusetts. The Company and OXB (US) LLC entered into a lease assignment and assumption agreement pursuant to which Homology assigned all of its right, title and interest in, to and under this lease to OXB (US) LLC and a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology. However, as the Company remains jointly and severally liable for the payment of rent under this lease, the Company has not been released from being the primary obligor under such lease and therefore the related right-of-use asset and operating lease liability were not derecognized and remain on the Company's consolidated balance sheets. Therefore, the Company is recording sublease income from OXB (US) LLC as if it were subleasing the space to OXB (US) LLC.

During the year ended December 31, 2022, the Company recorded sublease income of $2.0 million related to the sublease agreement with OXB (US) LLC. This amount was recognized as a reduction to lease expense in the Company's consolidated statements of operations. As of December 31, 2022, the amount of sublease income receivable from OXB (US) LLC was $0.5 million and was included in accrued expenses and other liabilities on the Company's condensed consolidated balance sheets.

Transitional Services Agreement

Under the transitional services agreement with OXB (US) LLC (the "Services Agreement"), the Company is performing certain services for the benefit of OXB (US) LLC and OXB (US) LLC is performing certain services for the benefit of the Company. The term of the Services Agreement will not exceed eighteen months and lasts until the earlier of termination for convenience, termination for cause in the event of an uncured material breach, termination as a result of bankruptcy of either party, and expiration or termination of the only remaining outstanding service as set forth in the Services Agreement. Each company is fully reimbursing the other for these services.

Expenses incurred by the Company for services provided by OXB (US) LLC recognized under the Services Agreement totaled approximately $0.7 million for the year ended December 31, 2022, and is presented within research and development expenses in the consolidated statements of operations as the services related to facilities support within the Company's research and development labs. As of December 31, 2022, the amount due to OXB (US) LLC under the Services Agreement was $0.1 million and was included in accrued expenses and other liabilities on the Company's condensed consolidated balance sheets.

The Company provided finance, human resources, IT and legal services to OXB (US) LLC under the Services Agreement and recognized $1.7 million for the year ended December 31, 2022, for amounts reimbursed by OXB (US) LLC as a reduction to general and administrative expense in the Company's consolidated statements of operations. As of December 31, 2022, the Company had a receivable balance of $0.3 million from OXB (US) LLC which was recorded as a component of prepaid expenses and other current assets in the Company's condensed consolidated balance sheets. Pursuant to the Services Agreement, the Company has been paying vendors on OXB (US) LLC's behalf; this process will be fully transitioned to OXB (US) LLC in 2023. As of December 31, 2022, the amount receivable from OXB (US) LLC for amounts paid to vendors on their behalf was $1.1 million and was included in prepaid expenses and other current assets on the Company's consolidated balance sheets. In addition, the Company had an amount due to OXB (US) LLC of $2.0 million as a result of a year-end reconciliation between the two companies related to vendor invoicing.

HOMOLOGY MEDICINES, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)
(UNAUDITED)

	As of	
	September 30, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 29,111	$ 33,986
Short-term investments	74,187	141,040
Assets held for sale	314	—
Prepaid expenses and other current assets	3,023	5,989
Total current assets	106,635	181,015
Equity method investment	13,957	25,814
Property and equipment, net	—	1,078
Right-of-use assets	19,471	20,563
Total assets	$ 140,063	$ 228,470
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 7,803	$ 1,144
Accrued expenses and other liabilities	15,711	18,715
Operating lease liabilities	1,778	1,561
Deferred revenue	—	1,156
Total current liabilities	25,292	22,576
Non-current liabilities:		
Operating lease liabilities, net of current portion	26,560	27,916
Total liabilities	51,852	50,492
Commitments and contingencies (Note 9)		—
Stockholders' equity:		
Preferred stock, $0.0001 par value, 10,000,000 shares authorized; no shares issued and outstanding at September 30, 2023 and December 31, 2022	—	—
Common stock, $0.0001 par value; 200,000,000 shares authorized; 57,902,210 and 57,483,910 shares issued and outstanding as of September 30, 2023 and December 31, 2022, respectively	6	6
Additional paid-in capital	614,220	607,513
Accumulated other comprehensive loss	(36)	(404)
Accumulated deficit	(525,979)	(429,137)
Total stockholders' equity	88,211	177,978
Total liabilities and stockholders' equity	$ 140,063	$ 228,470

See notes to condensed consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)
(UNAUDITED)

	Three months ended September 30,		Nine months ended September 30,	
	2023	2022	2023	2022
Collaboration revenue	$ —	$ 802	$ 1,156	$ 2,406
Operating expenses:				
Research and development	17,519	25,854	60,489	71,202
General and administrative	6,842	7,810	23,355	29,991
Restructuring and other charges	6,640	—	6,640	—
Total operating expenses	31,001	33,664	90,484	101,193
Loss from operations	(31,001)	(32,862)	(89,328)	(98,787)
Other income:				
Gain on sale of business	—	—	—	131,249
Interest income	1,423	1,269	4,403	1,775
Total other income	1,423	1,269	4,403	133,024
Income (loss) before income taxes	(29,578)	(31,593)	(84,925)	34,237
Benefit from (provision for) income taxes	—	46	—	(816)
Loss from equity method investment	(3,376)	(2,179)	(11,917)	(4,131)
Net income (loss)	$ (32,954)	$ (33,726)	$ (96,842)	$ 29,290
Net income (loss) per share-basic	$ (0.57)	$ (0.59)	$ (1.68)	$ 0.51
Net income (loss) per share-diluted	$ (0.57)	$ (0.59)	$ (1.68)	$ 0.51
Weighted-average common shares outstanding-basic	57,853,132	57,447,192	57,788,755	57,372,399
Weighted-average common shares outstanding-diluted	57,853,132	57,447,192	57,788,755	57,901,298

See notes to condensed consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands)
(UNAUDITED)

	Three months ended September 30,		Nine months ended September 30,	
	2023	2022	2023	2022
Net income (loss)	$(32,954)	$(33,726)	$(96,842)	$29,290
Other comprehensive gain (loss):				
Change in unrealized gain (loss) on available for sale securities, net	52	(416)	368	(450)
Total other comprehensive gain (loss)	52	(416)	368	(450)
Comprehensive income (loss)	$(32,902)	$(34,142)	$(96,474)	$28,840

See notes to condensed consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share and per share amounts)
(UNAUDITED)

	Common Stock $0.0001 Par Value		Additional Paid-in Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at January 1, 2022	57,150,274	$ 6	$593,784	$ (7)	$ (424,132)	$ 169,651
Issuance of common stock from RSU vesting	87,140	—	—	—	—	—
Issuance of common stock from option exercises	293	—	1	—	—	1
Issuance of common stock pursuant to employee stock purchase plan	147,871	—	439	—	—	439
Stock-based compensation	—	—	4,051	—	—	4,051
Other comprehensive gain	—	—	—	7	—	7
Net income	—	—	—	—	92,105	92,105
Balance at March 31, 2022	57,385,578	$ 6	$598,275	$ —	$ (332,027)	$ 266,254
Stock-based compensation	—	—	3,143	—	—	3,143
Stock-based compensation for equity method investee	—	—	21	—	—	21
Other comprehensive loss	—	—	—	(41)	—	(41)
Net loss	—	—	—	—	(29,089)	(29,089)
Balance at June 30, 2022	57,385,578	$ 6	$601,439	$ (41)	$ (361,116)	$ 240,288
Issuance of common stock from RSU vesting	16,450	—	—	—	—	—
Issuance of common stock pursuant to employee stock purchase plan	78,582	—	124	—	—	124
Stock-based compensation	—	—	2,771	—	—	2,771
Stock-based compensation for equity method investee	—	—	20	—	—	20
Other comprehensive loss	—	—	—	(416)	—	(416)
Net loss	—	—	—	—	(33,726)	(33,726)
Balance at September 30, 2022	57,480,610	$ 6	$604,354	$ (457)	$ (394,842)	$ 209,061

	Common Stock $0.0001 Par Value		Additional Paid-in Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at January 1, 2023	57,483,910	$ 6	$607,513	$ (404)	$ (429,137)	$ 177,978
Issuance of common stock from RSU vesting	194,525	—	—	—	—	—
Issuance of common stock pursuant to employee stock purchase plan	116,332	—	150	—	—	150
Stock-based compensation	—	—	2,369	—	—	2,369
Stock-based compensation for equity method investee	—	—	24	—	—	24
Other comprehensive gain	—	—	—	222	—	222
Net loss	—	—	—	—	(28,844)	(28,844)
Balance at March 31, 2023	57,794,767	$ 6	$610,056	$ (182)	$ (457,981)	$ 151,899
Issuance of common stock from option exercises	3,366	—	2	—	—	2
Stock-based compensation	—	—	2,402	—	—	2,402
Stock-based compensation for equity method investee	—	—	22	—	—	22
Other comprehensive gain	—	—	—	94	—	94
Net loss	—	—	—	—	(35,044)	(35,044)
Balance at June 30, 2023	57,798,133	$ 6	$612,482	$ (88)	$ (493,025)	$ 119,375
Issuance of common stock from RSU vesting	86,592	—	—	—	—	—
Issuance of common stock pursuant to employee stock purchase plan	17,485	—	18	—	—	18
Stock-based compensation	—	—	1,706	—	—	1,706
Stock-based compensation for equity method investee	—	—	14	—	—	14
Other comprehensive gain	—	—	—	52	—	52
Net loss	—	—	—	—	(32,954)	(32,954)
Balance at September 30, 2023	57,902,210	$ 6	$614,220	$ (36)	$ (525,979)	$ 88,211

See notes to condensed consolidated financial statements.

HOMOLOGY MEDICINES, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(UNAUDITED)

	Nine months ended September 30,	
	2023	2022
Cash flows from operating activities:		
Net income (loss)	$ (96,842)	$ 29,290
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	578	997
Noncash lease expense	1,091	969
Loss from equity method investment	11,917	4,131
Stock-based compensation expense	6,477	9,965
Accretion of discount on short-term investments	(2,279)	(872)
Loss on disposal of property and equipment	68	—
Gain on sale of business	—	(131,249)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	2,966	(5,301)
Accounts payable	6,659	2,711
Accrued expenses and other liabilities	(2,996)	5,672
Deferred revenue	(1,156)	(2,406)
Operating lease liabilities	(1,138)	(369)
Net cash used in operating activities	(74,655)	(86,462)
Cash flows from investing activities:		
Purchases of short-term investments	(73,240)	(157,460)
Maturities of short-term investments	142,740	47,461
Proceeds from sale of business	—	130,000
Proceeds from sale of property and equipment	338	—
Purchases of property and equipment	(228)	(1,276)
Net cash provided by investing activities	69,610	18,725
Cash flows from financing activities:		
Proceeds from issuance of common stock pursuant to employee stock purchase plan	168	563
Proceeds from issuance of common stock from option exercises	2	1
Net cash provided by financing activities	170	564
Net change in cash, cash equivalents and restricted cash	(4,875)	(67,173)
Cash, cash equivalents and restricted cash, beginning of period	33,986	110,335
Cash, cash equivalents and restricted cash, end of period	$ 29,111	$ 43,162
Supplemental disclosures of noncash investing and financing activities:		
Property and equipment additions included in accrued expenses and other liabilities	$ —	$ 8
Unrealized gain (loss) on available for sale securities, net	$ 368	$ (450)

See notes to condensed consolidated financial statements.

HOMOLOGY MEDICINES, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except share and per share amounts)
(UNAUDITED)

1. NATURE OF BUSINESS AND BASIS OF PRESENTATION

Nature of Business—Homology Medicines, Inc. (the "Company" or "Homology") is a clinical-stage genetic medicines company historically focused on transforming the lives of patients suffering from rare diseases by addressing the underlying cause of the disease with one-time gene therapy and gene editing treatments. The Company was founded in March 2015 as a Delaware corporation. Its principal offices are in Bedford, Massachusetts.

On July 27, 2023, the Company announced that it had completed a review of its business and the Company's Board of Directors had approved a plan to explore, review and evaluate a range of potential strategic options available to the Company, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Based on the current financing environment and the Company's anticipated clinical development timeline for its lead program, HMI-103, the Company also announced that it was stopping further development of its programs and reduced its workforce by 86% in an effort to significantly reduce its ongoing operating costs as it evaluates strategic alternatives. The workforce reduction was substantially completed in the third quarter of 2023 (see Note 8).

On March 9, 2023, the Company filed a Registration Statement on Form S-3 (File No. 333-270414) (the "Shelf") with the SEC in relation to the registration of up to an aggregate of $250.0 million of its common stock, preferred stock, debt securities, warrants and/or units of any combination thereof for a period up to three years from the date of the filing. The Shelf became effective on March 17, 2023. The Company also simultaneously entered into a sales agreement with TD Cowen, as sales agent, providing for the offering, issuance and sale by the Company of up to an aggregate of $75.0 million of its common stock from time to time in "at-the-market" offerings under the Shelf (the "ATM"). The Company did not sell any shares of common stock under the ATM during the nine months ended September 30, 2023. As of September 30, 2023, there remained $75.0 million of common stock available for sale under the ATM.

On March 10, 2022, the Company closed a transaction with Oxford Biomedica plc ("Oxford"), to establish a new adeno-associated virus ("AAV") vector manufacturing company, Oxford Biomedica (US) LLC ("OXB (US) LLC") that provides AAV vector process development and manufacturing services to biotechnology companies. Under the terms of the agreement, the Company contributed its manufacturing team of 125 employees, manufacturing facility and equipment, manufacturing-related intellectual property and know-how and certain other assets. Oxford paid the Company $130.0 million of upfront cash and invested $50.0 million of cash to fund OXB (US) LLC in exchange for an 80 percent ownership interest, while Homology retained a 20 percent ownership interest in the new company and received a put option on this ownership position (see Note 5).

Since its inception and until recently, the Company devoted substantially all of its resources to recruiting personnel, developing its technology platform and advancing its pipeline of product candidates through discovery, preclinical and clinical trials, developing and implementing manufacturing processes, building out manufacturing and research and development space, and maintaining and building its intellectual property portfolio. The Company is subject to a number of risks similar to those of other companies conducting high-risk, early-stage research and development of product candidates. Principal among these risks are dependency on key individuals and intellectual property, competition from other products and companies, and the technical and regulatory risks associated with the successful research, development and manufacturing of its product candidates.

To date, the Company has not generated any revenue from product sales and does not expect to generate any revenue from the sale of product in the foreseeable future. Through September 30, 2023, the Company has financed its operations primarily through public offerings of its common stock, the issuance of convertible preferred stock, and with proceeds from its transaction with Oxford (see Note 5), its collaboration and license agreement with a former collaboration partner and its private placement with Pfizer (see Note 12). During the nine months ended September 30, 2023, the Company incurred a loss from operations of $96.8 million and as of September 30, 2023, the Company had $526.0 million in accumulated deficit.

The Company has incurred and expects to continue to incur costs and expenditures in connection with the process of evaluating strategic alternatives. There can be no assurance, however, that the Company will be able to successfully consummate any particular strategic transaction. The process of evaluating strategic options has been and may continue to be costly, time-consuming and complex and the Company may incur significant costs related to this continued evaluation, such as legal, accounting and advisory fees and expenses and other related charges.

Based on current projections, management believes that the Company's existing cash and cash equivalents and short-term investments as of September 30, 2023 will enable the Company to continue its operations for at least one year from the date of this filing. However, due to the consideration of certain qualitative factors, including the discontinuation of all clinical trials and research activities, as well as the Company's workforce reduction of all but a few custodial employees, management has concluded there is substantial doubt regarding the Company's ability to continue as a going concern for more than twelve months from the issuance date of the unaudited condensed consolidated financial statements for the period ended September 30, 2023. These financial statements do not include any adjustments that might result from the outcome of this uncertainty. Should the Company resume the development of product candidates, it would need to obtain substantial additional funding in connection with continuing operations, particularly as the Company resumes its preclinical activities and clinical trials for its product candidates. There can be no assurance that the Company will be able to obtain sufficient capital to cover its costs on acceptable terms, if at all.

Basis of Presentation— The accompanying unaudited condensed consolidated financial statements have been prepared by the Company in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") and pursuant to the rules and regulations of the SEC for interim financial statements. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. However, the Company believes that the disclosures are adequate to make the information presented not misleading. These condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements and the notes thereto for the year ended December 31, 2022, included in the Company's audited consolidated financial statements and the notes thereto for the year ended December 31, 2022, included elsewhere in this proxy/registration statement.

The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements. In the opinion of management, the accompanying unaudited interim condensed consolidated financial statements contain all adjustments which are necessary for a fair statement of the Company's financial position as of September 30, 2023, and consolidated results of operations for the three and nine months ended September 30, 2023 and 2022, and cash flows for the nine months ended September 30, 2023 and 2022. Such adjustments are of a normal and recurring nature. The results of operations for the three and nine months ended September 30, 2023 are not necessarily indicative of the results of operations that may be expected for the year ending December 31, 2023.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation—The Company's condensed consolidated financial statements include the accounts of the Company and its subsidiary, Homology Medicines Securities Corporation, a wholly owned Massachusetts corporation, for the sole purpose of buying, selling, and holding securities on the Company's

behalf. All intercompany balances and transactions have been eliminated in the condensed consolidated financial statements.

Use of Estimates—The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. The Company bases its estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. Significant estimates and assumptions reflected in these condensed consolidated financial statements include, but are not limited to, revenue recognition, accrued research and development expenses and the valuation of the Company's equity method investment. The Company assesses estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Comprehensive Income (Loss)—Comprehensive income (loss) is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. The Company's only element of other comprehensive income (loss) is unrealized gains and losses on available-for-sale investments.

Cash and Cash Equivalents and Restricted Cash—Cash and cash equivalents consist of standard checking accounts, money market accounts and certain investments. The Company considers all highly liquid investments with original or remaining maturities at the time of purchase of 90 days or less to be cash equivalents. The Company did not have any restricted cash at September 30, 2023 or December 31, 2022.

Short-Term Investments—Short-term investments represent holdings of available-for-sale marketable securities in accordance with the Company's investment policy and cash management strategy. Short-term investments have maturities of greater than 90 days at the time of purchase and mature within one year from the balance sheet date. Investments in marketable securities are recorded at fair value, with any unrealized gains and losses reported within accumulated other comprehensive income as a separate component of stockholders' equity until realized or until a determination is made that an other-than-temporary decline in market value has occurred. Any premium or discount arising at purchase is amortized and/or accreted to interest income and/or expense over the life of the underlying security. Such amortization and accretion, together with interest on securities, are included in interest income in the Company's condensed consolidated statements of operations. The cost of marketable securities sold is determined based on the specific identification method and any realized gains or losses on the sale of investments are reflected as a component of other income.

Assets Held for Sale—The Company classifies assets as held for sale when the following conditions are met: (1) management has committed to a plan to sell, (2) the assets are available for immediate sale in their present condition, (3) the Company has initiated an active program to identify a buyer, (4) it is probable that a sale will occur within one year, (5) the assets are actively marketed for sale at a reasonable price in relation to their current fair value, and (6) there is a low likelihood of significant changes to the plan or that the plan will be withdrawn. If all of the aforementioned criteria are met as of the balance sheet date, the assets are presented separately in the consolidated balance sheet as held for sale at the lower of the carrying amount or fair value less costs to sell. The assets are then no longer depreciated or amortized while classified as held for sale**.**

Equity Method Investment—The Company uses the equity method of accounting to account for an investment in an entity that it does not control, but in which it has the ability to exercise significant influence over operating and financial policies. The Company's proportionate share of the net income or loss of the entity is included in consolidated net loss. Judgments regarding the level of influence over the equity method investment include consideration of key factors such as the Company's ownership interest, representation on the board of directors or other management body and participation in policy-making decisions.

Under the equity method of accounting, the Company's investment is initially recorded at fair value on the condensed consolidated balance sheets. Upon initial investment, the Company evaluates whether there are basis

differences between the carrying value and fair value of the Company's proportionate share of the investee's underlying net assets. Typically, the Company amortizes basis differences identified on a straight-line basis over the underlying assets' estimated useful lives when calculating the attributable earnings or losses, excluding the basis differences attributable to in-process research and development that has no alternative future use. If the Company is unable to attribute all of the basis differences to specific assets or liabilities of the investee, the residual excess of the cost of the investment over the proportional fair value of the investee's assets and liabilities is considered to be equity method goodwill and is recognized within the equity investment balance, which is tracked separately within the Company's memo accounts. The Company subsequently records in the condensed consolidated statements of operations its share of income or loss of the other entity within other income/expense, which results in an increase or decrease to the carrying value of the investment. If the share of losses exceeds the carrying value of the Company's investment, the Company will suspend recognizing additional losses and will continue to do so unless it commits to providing additional funding; however, if there are intra-entity profits this can cause the investment balance to go negative.

The Company evaluates its equity method investments for impairment whenever events or changes in circumstances indicate that a decline in value has occurred that is other than temporary. Evidence considered in this evaluation includes, but would not necessarily be limited to, the financial condition and near-term prospects of the investee, recent operating trends and forecasted performance of the investee, market conditions in the geographic area or industry in which the investee operates and the Company's strategic plans for holding the investment in relation to the period of time expected for an anticipated recovery of its carrying value. If the investment is determined to have a decline in value deemed to be other than temporary it is written down to estimated fair value.

At September 30, 2023, the Company accounted for its investment in OXB (US) LLC using the equity method of accounting (see Note 5).

Offering Costs—The Company capitalizes incremental legal, professional accounting and other third-party fees that are directly associated with equity financings as other current assets until the transactions are completed. After equity financings are complete, these costs are recorded in stockholders' equity as a reduction of additional paid-in capital generated as a result of the offering.

Leases—The Company determines if an arrangement is a lease at contract inception. The Company's contracts are determined to contain a lease when all of the following criteria based on the specific circumstances of the arrangement are met: (1) there is an identified asset for which there are no substantive substitution rights; (2) the Company has the right to obtain substantially all of the economic benefits from the identified asset; and (3) the Company has the right to direct the use of the identified asset.

At the commencement date, operating lease liabilities and their corresponding right-of-use assets are recorded based on the present value of future lease payments over the expected lease term. The Company's lease agreements do not provide an implicit rate. As a result, the Company utilizes an estimated incremental borrowing rate to discount lease payments, which is based on the rate of interest the Company would have to pay to borrow a similar amount on a collateralized basis over a similar term. Certain adjustments to the right-of-use asset may be required for items such as initial direct costs paid or lease incentives received. Operating lease cost is recognized over the expected term on a straight-line basis. The expected lease term includes noncancelable lease periods and, when applicable, periods covered by an option to extend the lease if the Company is reasonably certain to exercise that option, as well as periods covered by an option to terminate the lease if the Company is reasonably certain not to exercise that option. Variable lease cost is recognized as incurred. Right-of-use assets are periodically evaluated for impairment.

The Company acts as sublessor related to a sublease of a substantial portion of the Company's headquarters that is now occupied by OXB (US) LLC. Fixed sublease payments received are recorded as a reduction to lease cost. Although Homology assigned all of its right, title and interest in, to and under this lease to OXB (US) LLC,

the Company remained jointly and severally liable for the payment of rent under this lease as of and for the three and nine months ended September 30, 2023. Therefore, the related right-of-use asset and operating lease liability were not derecognized and remained on the Company's condensed consolidated balance sheets as of September 30, 2023. The Company was released from being the primary obligor under such lease effective October 1, 2023 (see Note 14).

Research and Development Costs—Research and development costs are charged to expense as incurred. Research and development expense consists of expenses incurred in performing research and development activities, including salaries and benefits, materials and supplies, preclinical and clinical expenses, stock-based compensation expense, depreciation of equipment, contract services, and other outside expenses.

Costs for certain development activities are recognized based on an evaluation of the progress to completion of specific tasks using information provided to the Company by its vendors on their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the consolidated financial statements as prepaid expense or accrued research and development expense.

Income Taxes—The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the Company's condensed consolidated financial statements and tax returns. Deferred tax assets and liabilities are determined based upon the differences between the financial statement carrying amounts and the tax bases of existing assets and liabilities and for loss and credit carryforwards, using enacted tax rates expected to be in effect in the year in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. The Company determines whether it is more likely than not that a tax position will be sustained upon examination. The tax benefit to be recognized for any tax position that meets the more-likely-than-not recognition threshold is calculated as the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement. If it is not more likely than not that a position will be sustained, none of the benefit attributable to the position is recognized. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes. Since inception, the Company has provided a valuation allowance for the full amount of the net deferred tax assets as the realization of the net deferred tax assets has not been determined to be more likely than not.

The Company recorded an income tax benefit of less than $0.1 million and an income tax provision of $0.8 million for the three and nine months ended September 30, 2022, respectively. The year-to-date tax provision predominately resulted from the gain associated with the sale of the Company's manufacturing business due to the transaction with Oxford (see Note 5), offset by available federal and state net operating loss carryforwards and research and development tax credits which are subject to certain limitations as to their utilization. The Company did not record an income tax provision (benefit) for the three and nine months ended September 30, 2023.

Revenue Recognition—Revenue is recognized in accordance with FASB Accounting Standards Codification ("ASC") Topic 606, *Revenue from Contracts with Customers* ("ASC 606").

Under ASC 606, the Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, the Company performs the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the entity will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The promised goods or services in the Company's arrangements would likely consist of a license, rights to the Company's intellectual property or research, development and manufacturing services. Performance obligations are promised goods or services in a contract to transfer a distinct good or service to the customer and are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract. In assessing whether promised goods or services are distinct, the Company considers factors such as the stage of development of the underlying intellectual property, the capabilities of the customer to develop the intellectual property on its own or whether the required expertise is readily available and whether the goods or services are integral or dependent to other goods or services in the contract.

The Company estimates the transaction price based on the amount expected to be received for transferring the promised goods or services in the contract. The consideration may include fixed consideration and variable consideration. At the inception of each arrangement that includes variable consideration, the Company evaluates the amount of consideration to which the Company expects to be entitled to. The Company utilizes either the most likely amount method or expected value method to estimate the amount expected to be received based on which method best predicts the amount expected to be received. The amount of variable consideration that is included in the transaction price may be constrained and is included in the transaction price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period.

The Company's contracts may include development and regulatory milestone payments that are assessed under the most likely amount method and constrained until it is probable that a significant revenue reversal would not occur. Milestone payments that are not within the Company's control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. At the end of each reporting period, the Company re-evaluates the probability of achievement of such development and regulatory milestones and any related constraint, and if necessary, adjust its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect collaboration revenue in the period of adjustment.

For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from the Company's collaboration arrangement.

The Company allocates the transaction price based on the estimated standalone selling price of each performance obligation. The Company must develop assumptions that require judgment to determine the stand-alone selling price for each performance obligation identified in the contract. The Company utilizes key assumptions to determine the stand-alone selling price, which may include other comparable transactions, pricing considered in negotiating the transaction and the estimated costs. Variable consideration is allocated specifically to one or more performance obligations in a contract when the terms of the variable consideration relate to the satisfaction of the performance obligation and the resulting amounts allocated are consistent with the amounts the Company would expect to receive for the satisfaction of each performance obligation.

The consideration allocated to each performance obligation is recognized as revenue when control is transferred for the related goods or services. For performance obligations which consist of licenses and other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress. The Company evaluates the measure of progress for its over-time arrangements at each reporting period and, if necessary, updates the measure of progress and revenue recognized.

Net Income (Loss) per Share—Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding during the period. Diluted net income (loss) per share is computed using the weighted-average number of common shares outstanding during the period and, if dilutive, the weighted-average number of potential shares of common stock. The weighted-average number of common shares included in the computation of diluted net income (loss) gives effect to all potentially dilutive common equivalent shares, including outstanding stock options, restricted stock units and unvested shares of common stock.

Common stock equivalent shares are excluded from the computation of diluted net income (loss) per share if their effect is antidilutive. In periods in which the Company reports a net (loss) attributable to common stockholders, diluted net (loss) per share attributable to common stockholders is generally the same as basic net (loss) per share attributable to common stockholders, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Recent Accounting Pronouncements—The Jumpstart Our Business Startups Act of 2012 permits an emerging growth company to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. As an emerging growth company, the Company has elected to take advantage of this extended transition period.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13") to improve financial reporting by requiring more timely recording of credit losses on loans and other financial instruments held by financial institutions and other organizations. ASU 2016-13 requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions and reasonable and supportable forecasts. ASU 2016-13 also requires enhanced disclosures to help investors and other financial statement users better understand significant estimates and judgments used in estimating credit losses, as well as the credit quality and underwriting standards of an organization's portfolio. The Company adopted ASU 2016-13 on January 1, 2023. The adoption of ASU 2016-13 did not have a material impact on the Company's condensed consolidated financial statements and related disclosures.

3. SHORT-TERM INVESTMENTS

The Company may invest its excess cash in fixed income instruments denominated and payable in U.S. dollars, including U.S. treasury securities, commercial paper, corporate debt securities and asset-backed securities in accordance with the Company's investment policy that primarily seeks to maintain adequate liquidity and preserve capital.

The following table summarizes the Company's short-term investments as of September 30, 2023 and December 31, 2022:

As of September 30, 2023	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
		(in thousands)		
Commercial paper	$ 3,965	$ —	$ (2)	$ 3,963
US Treasury securities	55,268	6	(7)	55,267
Corporate debt securities	14,990	—	(33)	14,957
Total	$ 74,223	$ 6	$ (42)	$74,187

As of December 31, 2022	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
	(in thousands)			
Commercial paper	$ 57,138	$ —	$ —	$ 57,138
US Treasury securities	65,160	—	(335)	64,825
Corporate debt securities	19,146	—	(69)	19,077
Total	$141,444	$ —	$ (404)	$141,040

The Company utilizes the specific identification method in computing realized gains and losses. The Company had no realized gains and losses on its available-for-sale securities for the three and nine months ended September 30, 2023 and 2022. The contractual maturity dates of all of the Company's investments are less than one year.

4. FAIR VALUE MEASUREMENTS

The Company's financial instruments consist of cash and cash equivalents, short-term investments, restricted cash and accounts payable. The carrying amount of cash, restricted cash and accounts payable are each considered a reasonable estimate of fair value due to the short-term maturity.

Assets measured at fair value on a recurring basis were as follows:

Description	September 30, 2023	Quoted Prices (Unadjusted) in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents:				
Money market mutual funds	$ 28,375	$ 28,375	$ —	$ —
Total cash equivalents	$ 28,375	$ 28,375	$ —	$ —
Short-term investments:				
Commercial paper	$ 3,963	$ —	$ 3,963	$ —
US Treasury securities	55,267	—	55,267	—
Corporate debt securities	14,957	—	14,957	—
Total short-term investments	$ 74,187	$ —	$ 74,187	$ —
Total financial assets	$ 102,562	$ 28,375	$ 74,187	$ —

Description	December 31, 2022	Quoted Prices (Unadjusted) in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents:				
Money market mutual funds	$ 33,967	$ 33,967	$ —	$ —
Total cash equivalents	$ 33,967	$ 33,967	$ —	$ —
Short-term investments:				
Commercial paper	$ 57,138	$ —	$ 57,138	$ —
US Treasury securities	64,825	—	64,825	—
Corporate debt securities	19,077	—	19,077	—
Total short-term investments	$ 141,040	$ —	$ 141,040	$ —
Total financial assets	$ 175,007	$ 33,967	$ 141,040	$ —

Short-term securities are valued using models or other valuation methodologies that use Level 2 inputs. These models are primarily industry-standard models that consider various assumptions, including time value, yield curve, volatility factors, default rates, current market and contractual prices for the underlying financial instruments, as well as other relevant economic measures. Substantially all of these assumptions are observable in the marketplace, can be derived from observable data or are supported by observable levels at which transactions are executed in the marketplace.

There were no transfers between fair value measurement levels during the three and nine months ended September 30, 2023 and 2022.

5. EQUITY METHOD INVESTMENT

Summary of Transaction

On March 10, 2022, the Company closed a transaction with OXB (US) LLC, Oxford Biomedica (US), Inc., ("OXB"), and Oxford, pursuant to the Equity Securities Purchase Agreement (the "Purchase Agreement"), dated as of January 28, 2022, by and among Homology, OXB (US) LLC and Oxford, whereby, among other things, Homology and Oxford agreed to collaborate to operate OXB (US) LLC, which provides AAV vector process development and manufacturing services to pharmaceutical and biotechnology companies (the "OXB (US) LLC Transaction").

Pursuant to the terms of the Purchase Agreement and a contribution agreement (the "Contribution Agreement") entered into between Homology and OXB (US) LLC prior to the closing of the OXB (US) LLC Transaction (the "Closing"), Homology contributed its manufacturing team of 125 employees and assigned and transferred to OXB (US) LLC all of its assets that are primarily used in the manufacturing of AAV vectors for use in gene therapy and gene editing products, including its manufacturing facility and equipment and manufacturing-related intellectual property and know-how, but excluding certain assets related to manufacturing or testing of Homology's proprietary AAV vectors (collectively, the "Transferred Assets"), in exchange for 175,000 common equity units in OXB (US) LLC ("Units"), representing 100 percent (100%) of the ownership interest of OXB (US) LLC, and OXB (US) LLC assumed from the Company, and agreed to pay, perform and discharge when due, all of the Company's duties, obligations, liabilities, interests and commitments of any kind under, arising out of or relating to the Transferred Assets.

Effective as of the Closing, Homology sold to OXB, and OXB purchased from Homology, 130,000 Units, (the "Transferred Units") in exchange for $130.0 million of cash consideration. In connection with the Closing, OXB contributed $50.0 million in cash to OXB (US) LLC in exchange for an additional, newly issued 50,000 Units. Immediately following the Closing, (i) OXB owned 180,000 Units, representing 80 percent (80%) of the fully diluted equity interests in OXB (US) LLC, and (ii) Homology owned 45,000 Units, representing 20 percent (20%) of the fully diluted equity interests in OXB (US) LLC.

Pursuant to the Amended and Restated Limited Liability Company Agreement of OXB (US) LLC (the "OXB (US) LLC Operating Agreement") which was executed in connection with the Closing, at any time following the three-year anniversary of the Closing, (i) OXB will have an option to cause Homology to sell and transfer to OXB, and (ii) Homology will have an option to cause OXB to purchase from Homology, in each case all of Homology's equity ownership interest in OXB (US) LLC at a price equal to 5.5 times the revenue for the immediately preceding 12-month period (together, the "Options"), subject to a maximum amount of $74.1 million. Pursuant to the terms of the OXB (US) LLC Operating Agreement, Homology is entitled to designate one director to the board of directors of OXB (US) LLC, currently Albert Seymour, Homology's Chief Executive Officer.

Pursuant to the OXB (US) LLC Transaction, the Company also assigned all of its right, title and interest in, to and under its facility lease to OXB (US) LLC. However, as the Company remained jointly and severally liable

for the payment of rent under the facility lease, the Company had not been released from being the primary obligor under such lease as of September 30, 2023 and therefore the related right-of-use asset and lease liability were not derecognized and remained on the Company's balance sheet. The Company determined that the expected disposal of the fixed assets did not qualify for reporting as a discontinued operation since it did not represent a strategic shift that has or will have a major effect on the Company's operations and financial results. Subsequently, the Company was released from being the primary obligor under such lease effective as of October 1, 2023 (see Note 14).

Equity Method of Accounting

The Company has significant influence over, but does not control, OXB (US) LLC through its noncontrolling representation on OXB's board of directors and the Company's equity interest in OXB (US) LLC. In addition, the Company and OXB (US) LLC have intra-entity transactions through a series of agreements entered into in conjunction with the OXB (US) LLC Transaction, OXB (US) LLC granted certain licenses to the Company, and the Company has representation on the joint steering committee which oversees the activities governed by the Supply Agreement. Accordingly, the Company does not consolidate the financial statements of OXB (US) LLC and accounts for its investment using the equity method of accounting.

The Company recorded its equity method investment in OXB (US) LLC at fair value upon deconsolidation of OXB (US) LLC as of the Closing. The fair value of the equity method investment was determined based on the market approach. This approach estimated the fair value of OXB (US) LLC based on the implied value for the entity using the consideration paid, including the Options, for a controlling interest in OXB (US) LLC at the entity's formation. As part of its fair value analysis, the Company determined that the Options are embedded in the common equity units because the Options are not legally detachable or separately exercisable. Accordingly, the equity method investment and the Options represent one unit of account and the fair value recorded reflects the value of the equity interest and the Options. The valuation included certain subjective assumptions including discounts for lack of control and marketability given the consideration paid for OXB (US) LLC was for a controlling interest in the entity and the Company owns a noncontrolling interest. As of March 10, 2022, the Closing, the fair value of the Company's investment in OXB (US) LLC was $31.2 million and the Company recorded a gain of $131.2 million on the sale of its manufacturing business in other income in the Company's condensed consolidated statements of operations. The gain was computed as follows:

(in thousands)	March 10, 2022
Cash received	$ 130,000
Plus: Fair value of equity method investment	31,223
Less: Carrying value of transferred assets	(29,974)
Gain on sale of business	$ 131,249

During the nine months ended September 30, 2023, the Company determined that the fair value of its investment in OXB (US) LLC was negatively impacted due to a change in OXB (US) LLC's forecasted performance relative to expected performance when the Company initially invested in OXB (US) LLC. The Company determined that the decline in value was deemed to be other than temporary and recorded an impairment charge of $3.8 million to reduce its equity method investment to fair value. The impairment charge is included in the loss on equity method investment in the Company's condensed consolidated statements of operations.

In addition, the Company records its share of income or losses from OXB (US) LLC on a quarterly basis. For the nine months ended September 30, 2023, the Company recorded $8.1 million representing its share of OXB (US) LLC's net loss for the period. As of September 30, 2023, the carrying value of the equity method investment was $14.0 million.

6. PROPERTY AND EQUIPMENT, NET

Property and equipment, net consists of the following:

	As of	
	September 30, 2023	December 31, 2022
	(in thousands)	
Laboratory equipment	$ —	$ 6,025
Computers and purchased software	—	644
Furniture and fixtures	—	645
Property and equipment, at cost	—	7,314
Less: accumulated depreciation and amortization	—	(6,236)
Property and equipment, net	$ —	$ 1,078

In August 2023, consistent with its decision to stop further development of its programs and explore, review and evaluate a range of potential strategic options available to the Company, the Company committed to a plan to sell its remaining property and equipment and therefore has classified the amount as assets held for sale on the consolidated balance sheet as of September 30, 2023. The assets held for sale were reported at the lower of the carrying amount or fair value with no depreciation expense taken after August 2023.

Depreciation expense for the three and nine months ended September 30, 2023 was approximately $0.1 million and $0.6 million, respectively, compared to $0.3 million and $1.0 million, respectively for the three and nine months ended September 30, 2022. The Company had approximately $0.4 million of disposals of property and equipment during the three and nine months ended September 30, 2023. The Company had no disposals of property and equipment during the three and nine months ended September 30, 2022.

7. ACCRUED EXPENSES AND OTHER LIABILITIES

Accrued expenses and other liabilities consist of the following:

	As of	
	September 30, 2023	December 31, 2022
	(in thousands)	
Accrued research and development expenses	$ 8,198	$ 9,447
Accrued compensation and benefits	6,660	5,953
Accrued professional fees	648	1,052
Accrued other	205	2,263
Total accrued expenses and other liabilities	$ 15,711	$ 18,715

8. RESTRUCTURING AND OTHER CHARGES

On July 25, 2023, the Company's Board of Directors approved a process to explore, review and evaluate a range of potential strategic options available to the Company, including, without limitation, an acquisition, merger, reverse merger, sale of assets, strategic partnerships or other transactions. Therefore, based on cost-reduction initiatives intended to reduce the Company's ongoing operating expenses and maximize shareholder value as the Company plans to pursue strategic options, the Company's Board of Directors also approved a reduction in the Company's workforce by approximately 80 employees, or 86% of the Company's workforce as of July 2023. In connection with this corporate restructuring, the Company recorded a restructuring charge for

severance and related costs of $6.9 million in the Company's condensed consolidated statements of operations during the three months ended September 30, 2023.

The Company's restructuring liability, which was included in accrued compensation and benefits, consisted of the following:

(in thousands)	Employee-Related Costs
Accrued restructuring balance at January 1, 2023	$ —
Expenses incurred	6,895
Payments	(2,154)
Accrued restructuring balance at September 30, 2023	$ 4,741

The Company had previously granted certain of the terminated employees restricted stock units ("RSUs") that vest in annual installments based on continued service to the Company, as well as options to purchase shares of the Company's common stock that typically vest over a period of four years. In connection with the reduction in workforce, the Company agreed to accelerate the vesting of a portion of the RSUs that were unvested as of the employees' termination dates, and also modify the stock options for terminated employees such that subject to the satisfaction of severance conditions, the terminated employees' vested options will remain outstanding and exercisable until the first anniversary of each employee's termination date. These equity modifications, described in detail in Note 10, resulted in a net reduction to stock based compensation expense of $0.3 million reflected within restructuring and other charges in the Company's condensed consolidated statements of operations during the three months ended September 30, 2023.

9. COMMITMENTS AND CONTINGENCIES

Operating Leases—In December 2017, the Company entered into a noncancelable operating lease for approximately 67,000 square feet of research and development, manufacturing and general office space in Bedford, Massachusetts. Prior to a subsequent amendment described below, the lease was set to expire in February 2027 with an option for an additional five-year term. Rent became due under the lease in two phases; rent on the first 46,000 square feet started in September 2018 and rent on the remaining 21,000 square feet started in March 2019. The initial annual base rent was $39.50 per square foot and increases by three percent annually. The Company is obligated to pay, on a pro-rata basis, real estate taxes and operating costs related to the premises. The lease agreement allowed for a tenant improvement allowance not to exceed $10.9 million, which the Company received in full, to be applied to the total cost of tenant improvements to the leased premises. The unamortized balance of the tenant improvement allowance was included in deferred rent incentives and recorded as a reduction to operating right-of-use asset upon adoption of the new leasing standards.

In November 2021, the Company entered into an amendment of its December 2017 lease agreement (the "Lease Amendment") for its corporate headquarters in Bedford, Massachusetts. The Lease Amendment increases the space under lease by approximately 23,011 square feet (the "Expansion Premises") and extended the expiration date of the existing premises under the lease from February 2027 to June 2030. The payment term with respect to the Expansion Premises commenced on May 1, 2022 and continues for a period of ten years and five months. The term of the Expansion Premises and the existing premises are not coterminous. Annual base rent for the existing premise under the Lease Amendment is approximately $4.7 million beginning on March 1, 2027, and increases by three percent annually; annual base rent for the Expansion Premises is approximately $1.4 million per year and increases by three percent annually. The Lease Amendment allows for tenant improvement allowances not to exceed $6.3 million in the aggregate. The Lease Amendment was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $10.9 million to both the right-of-use asset and operating

lease liabilities. In February 2022, the Company revised its assumption for when it expects to utilize the tenant improvement allowances. This change in assumption was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $0.2 million to both the right-of-use asset and operating lease liabilities.

In March 2022, in accordance with its transaction with OXB (US) LLC, the Company assigned all of its right, title and interest in, to and under its corporate headquarters lease to OXB (US) LLC and entered into a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology. The Company was not released from being the primary obligor under such lease as of September 30, 2023 and therefore the related right-of-use asset and operating lease liability were not derecognized and remained on the Company's balance sheet and the Company acted as sublessor to OXB (US) LLC for accounting purposes. See Note 5 for details. During the nine months ended September 30, 2023, the Company received $2.3 million in sublease payments from OXB (US) LLC, which is recorded as a reduction to lease cost. In October 2023, the Company was released from being primary obligor under the lease (see Note 14).

In September 2022, the Company concluded that 100% of the tenant improvement allowances would be utilized by OXB (US) LLC. This change in assumption was accounted for as a lease modification and the right-of-use asset and operating lease liability for the existing premises were remeasured at the modification date, which resulted in an increase of $6.1 million to both the right-of-use asset and operating lease liabilities.

The following table summarizes operating lease costs and variable lease costs, as well as sublease income:

	Nine months ended September 30,	
	2023	2022
	(in thousands)	
Operating lease costs	$ 3,263	$ 2,826
Variable lease costs	1,551	1,698
Sublease income	(2,312)	(1,210)
Net lease cost	$ 2,502	$ 3,314

The maturities of the Company's operating lease liabilities and minimum lease payments as of September 30, 2023 were as follows:

For the Years Ending December 31,	Amount (in thousands)
2023	1,134
2024	4,578
2025	4,715
2026	4,857
Thereafter	26,265
Total undiscounted lease payments	$ 41,549
Less: imputed interest	(13,211)
Present value of operating lease liabilities	$ 28,338

The following table summarizes the lease term and discount rate as of September 30, 2023:

	September 30, 2023
Weighted-average remaining lease term (years)	
Operating leases	7.5
Weighted-average discount rate	
Operating leases	10.6%

The following table summarizes the supplemental cash flow information related to the Company's operating lease:

	Nine months ended September 30,	
	2023	2022
	(in thousands)	
Cash paid for amounts included in the measurement of lease liabilities	$ 3,310	$ 2,226
Increase in lease liabilities and right-of-use assets due to lease remeasurements	$ —	$ 6,262

Legal Proceedings—On March 25, 2022, the Company and certain of its executives were named as defendants in a putative securities class action lawsuit filed in the United States District Court for the Central District of California; *Pizzuto v. Homology Medicines, Inc.*, No. 2:22–CV–01968 (C.D. Cal 2022). The complaint alleges that the Company failed to disclose certain information regarding efficacy and safety in connection with a Phase I/II HMI-102 clinical trial, and seeks damages in an unspecified amount. The case is in its early stages. The Company believes the claims alleged lack merit and filed a motion to transfer venue (filed September 2, 2022) and a motion to dismiss (filed October 17, 2022). On April 18, 2023, the court granted the motion to transfer, finding that venue was not proper in the Central District of California and transferring the case to the District of Massachusetts. Following the transfer, the case number changed to 1:23-cv-10858-AK (D. Mass.). On May 9, 2023, the Massachusetts court issued an order permitting the parties to submit updated briefs in connection with the motion to dismiss, which were submitted on June 8, 2023, July 13, 2023, and August 3, 2023. The motion to dismiss remains pending. As the outcome is not presently determinable, any loss is neither probable nor reasonably estimable.

10. STOCK INCENTIVE PLANS

2015 Stock Incentive Plan

In December 2015, the Company's Board of Directors adopted the 2015 Stock Incentive Plan (the "2015 Plan"), which provided for the grant of incentive stock options, nonqualified stock options and restricted stock awards to the Company's employees, officers, directors, advisors, and outside consultants. Stock options granted under the 2015 Plan generally vest over a four-year period and expire ten years from the date of grant. Certain options provide for accelerated vesting if there is a change in control, as defined in the 2015 Plan. At September 30, 2023, there were no additional shares available for future grant under the 2015 Plan.

2018 Incentive Award Plan

In March 2018, the Company's Board of Directors adopted and the Company's stockholders approved the Homology Medicines, Inc. 2018 Incentive Award Plan (the "2018 Plan" and, together with the 2015 Plan, the "Plans"), which became effective on the day prior to the first public trading date of the Company's common stock. Upon effectiveness of the 2018 Plan, the Company ceased granting new awards under the 2015 Plan.

The 2018 Plan provides for the grant of incentive stock options, nonqualified stock options, restricted stock awards, restricted stock units, stock appreciation rights and other stock or cash-based awards to employees and consultants of the Company and certain affiliates and directors of the Company. The number of shares of common stock initially available for issuance under the 2018 Plan was 3,186,205 shares of common stock plus the number of shares subject to awards outstanding under the 2015 Plan that expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by the Company on or after the effective date of the 2018 Plan. In addition, the number of shares of common stock available for issuance under the 2018 Plan is subject to an annual increase on the first day of each calendar year beginning on January 1, 2019, and ending on and including January 1, 2028, equal to the lesser of (i) 4% of the Company's outstanding shares of common stock on the final

day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as determined by the Company's Board of Directors, provided that not more than 20,887,347 shares of common stock may be issued under the 2018 Plan upon the exercise of incentive stock options. Therefore, on January 1, 2023, an additional 2,299,356 shares were added to the 2018 Plan, representing 4% of total common shares outstanding at December 31, 2022. As of September 30, 2023, there were 1,978,793 shares available for future grant under the 2018 Plan.

2018 Employee Stock Purchase Plan

In March 2018, the Company's Board of Directors adopted and the Company's stockholders approved the Homology Medicines, Inc. 2018 Employee Stock Purchase Plan (the "2018 ESPP"). The 2018 ESPP allows employees to buy Company stock through after-tax payroll deductions at a discount from market value. The 2018 ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Internal Revenue Code. The number of shares of common stock initially available for issuance under the 2018 ESPP was 353,980 shares of common stock plus an annual increase on the first day of each calendar year, beginning on January 1, 2019, and ending on and including January 1, 2028 equal to the lesser of (i) 1% of the Company's outstanding shares of common stock on the final day of the immediately preceding calendar year and (ii) such smaller number of shares of common stock as determined by the Company's Board of Directors, provided that not more than 4,778,738 shares of common stock may be issued under the 2018 ESPP. Therefore, on January 1, 2023, an additional 574,839 shares were added to the 2018 ESPP, representing 1% of total common shares outstanding at December 31, 2022. As of September 30, 2023, there were 2,693,911 shares available for future issuance under the 2018 ESPP.

Under the 2018 ESPP, employees may purchase common stock through after-tax payroll deductions at a price equal to 85% of the lower of the fair market value on the first trading day of an offering period or the last trading day of an offering period. The 2018 ESPP generally provides for offering periods of six months in duration that end on the final trading day of each February and August. In accordance with the Internal Revenue Code, no employee will be permitted to accrue the right to purchase stock under the 2018 ESPP at a rate in excess of $25,000 worth of shares during any calendar year during which such a purchase right is outstanding (based on the fair market value per share of the Company's common stock as of the first day of the offering period).

During the nine months ended September 30, 2023, 133,817 shares were issued under the 2018 ESPP for aggregate proceeds to the Company of approximately $0.2 million. During the nine months ended September 30, 2022, 226,453 shares were issued under the 2018 ESPP for aggregate proceeds to the Company of approximately $0.6 million. Pursuant to the 2018 ESPP, the Company recorded stock-based compensation of less than $0.1 million during the three and nine months ended September 30, 2023 and 2022, respectively.

Stock Options

The fair value of each option award is estimated on the date of grant using the Black-Scholes option pricing model, with the assumptions noted in the table below. Expected volatility for the Company's common stock was determined based on an average of the historical volatility of a peer group of publicly traded companies that are similar to the Company. The expected term of options was calculated using the simplified method, which represents the average of the contractual term of the option and the weighted-average vesting period of the option. The Company uses the simplified method because it does not have sufficient historical option exercise data to provide a reasonable basis upon which to estimate expected term. The assumed dividend yield is based upon the Company's expectation of not paying dividends in the foreseeable future. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant for periods commensurate with the expected term of the award. The Company recognizes forfeitures as they occur.

The assumptions used in the Black-Scholes option pricing model are as follows (note that there were no options granted during the three months ended September 30, 2023):

	Three months ended September 30, 2022	Nine months ended September 30, 2023	Nine months ended September 30, 2022
Expected volatility	70.1%	69.2%-69.7%	68.7%-70.1%
Weighted-average risk-free interest rate	3.20%-3.66%	3.45%-4.22%	1.46%-3.66%
Expected dividend yield	— %	— %	— %
Expected term (in years)	6.25	5.5-6.25	5.5-6.25
Underlying common stock fair value	$ 1.82-$2.82	$ 0.92-$1.60	$ 1.78-$4.17

The following table summarizes the Company's stock option activity for the nine months ended September 30, 2023:

	Number of Options	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2023	9,865,734	$ 10.96	7.2	$ 493
Granted	3,188,150	$ 1.53		
Exercised	(3,366)	$ 0.47		
Cancelled/Forfeited	(623,776)	$ 11.11		
Outstanding at September 30, 2023	12,426,742	$ 8.55	4.9	$ 488
Vested and expected to vest at September 30, 2023	12,426,742	$ 8.55	4.9	$ 488
Exercisable at September 30, 2023	7,566,304	$ 11.80	4.5	$ 421

The total intrinsic value of options exercised during the nine months ended September 30, 2023 and 2022 was insignificant for each period. The weighted-average grant date fair value per share of options granted during the nine months ended September 30, 2023 and 2022 was $1.01 and $1.72, respectively.

Stock Awards Modifications - Corporate Restructuring

In connection with the Company's corporate restructuring (see Note 8), the Company terminated approximately 80 employees and modified approximately 3.3 million existing stock options and approximately 0.4 million existing restricted stock units ("RSUs") granted to these terminated employees in prior periods. The modification of the vested stock options to permit terminated employees up to one year following their termination date to exercise their options, rather than the 90-day window for terminated employees, is accounted for as a modification under FASB ASC Topic 718, *Compensation—Stock Compensation* ("ASC 718"). Accordingly, the Company recognized incremental compensation cost on the modification date in an amount equal to the difference between the fair value of the awards before and after the modification. The fair value of the awards immediately before assumes an expected term equal to 90 days from the termination date, whereas the fair value immediately after assumes an expected term equal to one year from the termination date. Total incremental compensation cost recognized in the three months ended September 30, 2023 related to awards that were vested as of the modification date was less than $0.1 million. All unvested stock options were forfeited upon termination and the Company reversed all compensation cost previously recorded on the forfeited awards. Total compensation cost reversed in the three months ended September 30, 2023 was less than $0.1 million.

The terminated employees' RSUs were modified to accelerate the vesting of a portion of the RSUs that were unvested as of the employees' termination dates. The accelerated vesting of certain RSUs is accounted for as a Type III (improbable to probable) modification under ASC 718. Accordingly, the Company reversed all compensation cost previously recorded on the awards that are not expected to vest under the original terms. Total compensation cost reversed in the three months ended September 30, 2023 was approximately $0.2 million. Total compensation cost of less than $0.1 million, equal to the modification date fair value, was recognized over the remaining service period, beginning on the modification date and ending on each employee's termination date.

Stock Awards Modifications - OXB (US) LLC Transaction

As part of the transaction with OXB (US) LLC (see Note 5), the Company transferred employees to OXB (US) LLC and modified approximately 1.6 million existing stock options and approximately 0.1 million existing restricted stock units granted to these transferred employees in prior periods in order to permit such individuals to continue vesting in their awards and exercise their vested options as long as they are employed by and provide services to OXB (US) LLC. The modification of the unvested stock awards to continue vesting was accounted for as a Type III (improbable to probable) modification under ASC 718. Accordingly, the Company reversed all compensation cost previously recorded on the awards that were not expected to vest under the original terms. Total compensation cost reversed in the three months ended March 31, 2022 was less than $0.1 million. Total compensation cost of $0.8 million, equal to the modification date fair value, will be recognized over the remaining service period. A portion of this total compensation cost will be included as a component of the loss from equity method investment.

The modification of the vested stock awards to permit transferred employees to exercise their options over the remaining life of the award, rather than the 90-day window for terminated employees, was accounted for as a modification under ASC 718. Accordingly, the Company recognized incremental compensation cost on the modification date in an amount equal to the difference between the fair value of the awards before and after modification. The fair value of the awards immediately before modification assumed a 90-day expected term, whereas the fair value immediately after assumed an expected term equal to the remaining life of the modified options. Total incremental compensation cost recognized in the year ended December 31, 2022 related to awards that were vested as of the modification date was $0.4 million.

Restricted Stock Units

The fair value of RSUs is based on the fair market value of the Company's common stock on the date of grant. Each RSU represents a contingent right to receive one share of the Company's common stock upon vesting. In general, RSUs vest annually in two or three equal installments on January 1st of each year after the grant date. The following table summarizes the Company's RSU activity for the nine months ended September 30, 2023:

	Number of Restricted Stock Units	Weighted-Average Grant Date Fair Value
Outstanding at January 1, 2023	543,179	$ 6.12
Granted	483,850	$ 1.60
Vested	(281,117)	$ 5.31
Forfeited	(258,184)	$ 2.54
Outstanding at September 30, 2023	487,728	$ 3.04

Stock-based Compensation Expense

The Company recognizes compensation expense for awards to employees based on the grant date fair value of stock-based awards on a straight-line basis over the period during which an award holder provides service in exchange for the award, which is generally the vesting period. The Company recorded stock-based compensation expense related to stock options, shares purchased under the 2018 ESPP, restricted stock units and stock award modifications as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2023	2022	2023	2022
	(in thousands)			
Research and development	$ 230	$ 889	$1,507	$4,143
General and administrative	1,477	1,882	4,970	5,822
	$1,707	$2,771	$6,477	$9,965

As of September 30, 2023, there was $10.5 million of unrecognized compensation expense related to unvested employee and non-employee share-based compensation arrangements granted under the Plans. The unrecognized compensation expense is estimated to be recognized over a period of 2.2 years at September 30, 2023.

11. NET INCOME (LOSS) PER SHARE

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding during the applicable period. Diluted net income (loss) per share incorporates the additional shares issuable upon assumed exercise of stock options and the vesting of restricted stock units, except in such case when their inclusion would be anti-dilutive.

	Three months ended September 30,		Nine months ended September 30,	
(in thousands, except per share amounts)	2023	2022	2023	2022
Numerator:				
Net income (loss)	$ (32,954)	$ (33,726)	$ (96,842)	$ 29,290
Denominator:				
Weighted-average common shares outstanding-basic	57,853,132	57,447,192	57,788,755	57,372,399
Dilutive securities	—	—	—	528,899
Weighted-average common shares outstanding-diluted	57,853,132	57,447,192	57,788,755	57,901,298
Net income (loss) per share-basic	$ (0.57)	$ (0.59)	$ (1.68)	$ 0.51
Net income (loss) per share-diluted	$ (0.57)	$ (0.59)	$ (1.68)	$ 0.51

For the three and nine months ended September 30, 2023, as well as for the three months end September 30, 2022, the effect of dilutive securities including stock options, restricted stock units and unvested common stock from early exercise of options, was excluded from the denominator for the calculation of diluted net loss per share because the Company recognized a net loss for the periods and their inclusion would be anti-dilutive. Anti-dilutive securities excluded for the three months ended September 30, 2023 and 2022 were 12,993,266 and 9,933,508, respectively, and for the nine months ended September 30, 2023 and 2022 were 12,507,026 and 9,048,927, respectively.

12. PFIZER STOCK PURCHASE AGREEMENT

On November 9, 2020, the Company entered into a common stock purchase agreement (the "Stock Purchase Agreement") with Pfizer Inc. ("Pfizer"), pursuant to which the Company agreed to issue and sell to Pfizer 5,000,000 shares of the Company's common stock through a private placement transaction (the "Private Placement") at a purchase price of $12.00 per share, for an aggregate purchase price of $60.0 million. The shares of common stock sold to Pfizer were subject to a one-year lock-up from closing, during which time Pfizer was prohibited from selling or otherwise disposing of such shares.

Under the Stock Purchase Agreement, Pfizer was granted an exclusive right of first refusal (the "ROFR") for a 30-month period (the "ROFR Period") beginning on the date of the closing of the Private Placement (collectively, the "ROFR Provision"), to negotiate a potential collaboration on the development and commercialization of HMI-102 and HMI-103. The ROFR Period expired on May 9, 2023. In addition to the ROFR, the Stock Purchase Agreement provided for an information sharing committee (the "Information Committee"), comprised of representatives of each company, which served as a forum for sharing information regarding the development of HMI-102 and HMI-103 during the ROFR Period.

The Company recorded the issuance of common stock at its estimated fair value of $52.0 million, which reflected a discount for the lack of marketability of the shares. The remaining $8.0 million of aggregate purchase price was allocated to the other elements of the Stock Purchase Agreement, which represented a contract with a customer. The Company concluded that the Information Committee represented the only performance obligation under the contract. The ROFR did not provide Pfizer with a material right and was therefore not a performance obligation. As such, the Company allocated the $8.0 million to the Information Committee obligation.

The Company recognizes revenue over time as the measure of progress, which it believes best depicts the transfer of control to Pfizer. The Information Committee met regularly over the ROFR Period to share information which resulted in recognition of the transaction price over the 30-month ROFR Period.

During the nine months ended September 30, 2023, the Company recognized collaboration revenue of $1.2 million, compared to $0.8 million and $2.4 million, respectively for the three and nine months ended September 30, 2022. As the ROFR Period expired in May 2023, there was no revenue recognized during the three months ended September 30, 2023. There was no deferred revenue related to the Company's obligation to Pfizer as of September 30, 2023. As of December 31, 2022, there was approximately $1.2 million of deferred revenue related to the Company's obligation to Pfizer.

13. RELATED PARTY TRANSACTIONS

Oxford Biomedica (US) LLC

As described in Note 5, the Company has significant influence over, but does not control, OXB (US) LLC through its noncontrolling representation on OXB (US) LLC's board of directors and the Company's equity interest in OXB (US) LLC. In March 2022, concurrently with the closing of the transaction with OXB (US) LLC, the Company entered into certain ancillary agreements with OXB (US) LLC including a supply agreement, a lease assignment and assumption agreement, a sublease agreement and a transitional services agreement.

Supply Agreement

Pursuant to the terms of the Manufacturing and Supply Agreement with OXB (US) LLC entered into in March 2022 (the "Supply Agreement"), the Company agreed to purchase from OXB (US) LLC at least 50% of its clinical supply requirements of AAV-based products during the initial term of the supply agreement. The Supply Agreement provides for an initial term of three years, which may be extended for an additional one-year term. Under the Supply Agreement, the Company is committed to purchase a minimum number of batches of drug substance and drug product, as well as process development services, totaling approximately $29.7 million

by the fiscal year ending December 31, 2023. As of September 30, 2023, the Company had approximately $1.4 million in remaining purchase obligations to OXB (US) LLC pursuant to the Supply Agreement. There are no minimum purchase commitments in 2024 (year three) of the Supply Agreement. After the initial term, the Company will have the right to terminate the Supply Agreement for convenience or other reasons specified in the Supply Agreement upon prior written notice. Either party may terminate the Supply Agreement upon an uncured material breach by the other party or upon the bankruptcy or insolvency of the other party.

During the three and nine months ended September 30, 2023, the Company recorded purchases of drug substance from OXB (US) LLC related to the Supply Agreement of $8.4 million and $21.7 million, respectively, as well as purchases of process development services of approximately $3.1 million and $5.8 million, respectively, and stability services and other support services of approximately $0.4 million and $1.2 million, respectively. During the three and nine months ended September 30, 2022, the Company recorded purchases of drug substance from OXB (US) LLC related to the Supply Agreement of $6.0 million and $7.5 million, respectively, as well as purchases of process development services of approximately $2.2 million and $10.2 million, respectively. These amounts are included within research and development expenses on the Company's condensed consolidated statements of operations. The amounts due to OXB (US) LLC under the Supply Agreement were $12.6 million and $5.2 million as of September 30, 2023 and December 31, 2022, respectively, and were included in accounts payable and accrued expenses and other liabilities on the Company's condensed consolidated balance sheets.

Lease Assignment and Sublease Agreement

As described in Note 9, the Company leases space for research and development, manufacturing and general office space in Bedford, Massachusetts. In March 2022, the Company and OXB (US) LLC entered into a lease assignment and assumption agreement pursuant to which Homology assigned all of its right, title and interest in, to and under this lease to OXB (US) LLC and a sublease agreement whereby OXB (US) LLC subleased certain premises in its facility to Homology. However, as of and for the three and nine months ended September 30, 2023, the Company remained jointly and severally liable for the payment of rent under this lease and had not been released from being the primary obligor under such lease and therefore the related right-of-use asset and operating lease liability were not derecognized and remained on the Company's condensed consolidated balance sheets. Therefore, the Company is recording sublease income from OXB (US) LLC as if it were subleasing the space to OXB (US) LLC. On October 1, 2023, the Company was released from being the primary obligor under the lease (see Note 14).

During the three and nine months ended September 30, 2023, the Company recorded sublease income of $0.8 million and $2.3 million, respectively, related to the sublease agreement with OXB (US) LLC. During the three and nine months ended September 30, 2022, the Company recorded sublease income of $0.5 million and $1.2 million, respectively, related to the sublease agreement with OXB (US) LLC. This amount was recognized as a reduction to lease expense in the Company's condensed consolidated statements of operations.

During 2023, OXB (US) LLC assumed responsibility for paying the landlord for invoices related to the leased property and, as such, the Company began making direct payments to OXB (US) LLC for amounts due to OXB (US) LLC under the sublease. Therefore, as of September 30, 2023, the amount of sublease income payable to OXB (US) LLC was $0.1 million and was included in accrued expenses on the Company's condensed consolidated balance sheets. As of December 31, 2022, the amount of sublease income receivable from OXB (US) LLC was $0.5 million and was included in prepaid expenses and other current assets on the Company's condensed consolidated balance sheets.

Transitional Services Agreement

Under the transitional services agreement with OXB (US) LLC (the "Services Agreement"), the Company is performing certain services for the benefit of OXB (US) LLC and OXB (US) LLC is performing certain services for the benefit of the Company. The term of the Services Agreement will not exceed eighteen months and lasts until the earlier of termination for convenience, termination for cause in the event of an uncured material breach, termination as a result of bankruptcy of either party, and expiration or termination of the only remaining outstanding service as set forth in the Services Agreement. Each company is fully reimbursing the other for these services. The Services Agreement was substantially complete as of September 30, 2023.

Expenses incurred by the Company for services provided by OXB (US) LLC recognized under the Services Agreement totaled $0.3 million for the nine months ended September 30, 2023, and $0.2 million and $0.5 million for the three and nine months ended September 30, 2022, respectively, and are presented within research and development expenses in the condensed consolidated statements of operations as the services related to facilities support within the Company's research and development labs. As of September 30, 2023 and December 31, 2022, the amount due to OXB (US) LLC under the Services Agreement was $0.1 million at each balance sheet date, and was included in accrued expenses and other liabilities on the Company's condensed consolidated balance sheets.

The Company provided finance, human resources, IT and legal services to OXB (US) LLC under the Services Agreement and recognized $0.5 million for the nine months ended September 30, 2023, and $0.8 million and $1.7 million for the three and nine months ended September 30, 2022, respectively, for amounts reimbursed by OXB (US) LLC as a reduction to general and administrative expense in the Company's condensed consolidated statements of operations. The Company did not provide reimbursable services to OXB (US) LLC under the Services Agreement during the three months ended September 30, 2023. As of December 31, 2022, the Company had a receivable balance of $0.3 million from OXB (US) LLC which was recorded as a component of prepaid expenses and other current assets in the Company's condensed consolidated balance sheets. Pursuant to the Services Agreement, the Company has been paying vendors on OXB (US) LLC's behalf; this process will be fully transitioned to OXB (US) LLC in 2023. As of December 31, 2022, the amount receivable from OXB (US) LLC for amounts paid to vendors on their behalf was $1.1 million and was included in prepaid expenses and other current assets on the Company's condensed consolidated balance sheets.

14. SUBSEQUENT EVENTS

Release Letter

On September 25, 2023, the Company signed and executed a release letter with its lessor related to its headquarters in Bedford, MA. The lessor agreed to release the Company of all obligations under the lease effective October 1, 2023 (the "Release Date") in exchange for a $0.1 million cash payment. For accounting purposes, the release letter is not considered a modification of the lease until the Release Date as the Company is not released from its obligations under the lease until such date. As of September 30, 2023, the lease had a remaining right-of-use asset balance of $19.5 million and an operating lease liability balance of $28.3 million. On October 1, 2023, the Company will write off the right-of-use asset and operating lease liability and record the difference as a gain of $8.8 million within other income on the condensed consolidated statements of operations. Because the Company's sublease agreement with OXB (US) LLC remains in effect after termination of the head lease, the Company will recognize a new right-of-use asset and an operating lease liability of $1.6 million, which equals the present value of the future sublease payments owed to OXB (US) LLC for the remaining term of the sublease. The Company is actively searching for a subtenant to take over its sublease with OXB (US) LLC and is evaluating whether there is any impairment of the related right-of-use asset.

Agreement and Plan of Merger

On November 16, 2023, the Company, Kenobi Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company ("Merger Sub"), and Q32 Bio Inc., a Delaware corporation ("Q32"), entered into an Agreement and Plan of Merger (the "Merger Agreement"), pursuant to which, among other matters, and subject to the satisfaction or waiver of the conditions set forth in the Merger Agreement, Merger Sub will merge with and into Q32, with Q32 continuing as a wholly owned subsidiary of the Company and the surviving corporation of the merger (the "Merger").

The Merger Agreement contains customary representations, warranties and covenants made by the Company and Q32, including covenants relating to obtaining the requisite approvals of the stockholders of the Company and Q32, indemnification of directors and officers, and the Company's and Q32's conduct of their respective businesses between the date of signing the Merger Agreement and the closing of the Merger. The Merger Agreement also contains certain customary termination rights. The Merger Agreement further provides that, upon termination of the Merger Agreement under specified circumstances, Q32 may be required to pay the Company a termination fee of $5.9 million, or the Company may be required to pay Q32 a termination fee of $2.4 million.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Q32 Bio Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Q32 Bio Inc. (the Company) as of December 31, 2022 and 2021, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' deficit and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

The Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has suffered recurring losses from operations, has a working capital deficiency, and has stated that substantial doubt exists about the Company's ability to continue as a going concern. Management's evaluation of the events and conditions and management's plans regarding these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

We have served as the Company's auditor since 2020.

/s/ Ernst & Young LLP

Boston, Massachusetts
December 15, 2023

Q32 BIO INC.
CONSOLIDATED BALANCE SHEETS
(amounts in thousands, except share and per share data)

	December 31, 2022	December 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	**$ 43,893**	$ 32,247
Prepaid expenses and other current assets	**2,960**	1,751
Total current assets	**46,853**	33,998
Property and equipment, net	**2,276**	203
Right-of-use asset, operating leases	**6,890**	—
Restricted cash and restricted cash equivalents	**5,647**	647
Other noncurrent assets	**108**	303
Total assets	**$ 61,774**	$ 35,151
Liabilities, convertible preferred stock and stockholders' deficit		
Current liabilities:		
Accounts payable	**$ 1,435**	$ 2,676
Accrued expenses and other current liabilities	**9,497**	4,540
Convertible notes	**32,402**	—
Deferred revenue, current portion	**14,531**	—
Total current liabilities	**57,865**	7,216
Other noncurrent liabilities	**—**	728
Deferred revenue, net of current portion	**11,318**	—
Lease liability, net of current portion	**6,786**	—
Venture debt	**5,072**	4,972
Total liabilities	**81,041**	12,916
Commitments and contingencies (Note 7)		
Series A convertible preferred stock, $0.0001 par value, 47,628,788 shares authorized, issued and outstanding as of December 31, 2022 and 2021 (liquidation preference of $47,629 at December 31, 2022)	**47,458**	47,458
Series A-1 convertible preferred stock, $0.0001 par value, 6,500,000 shares authorized, issued and outstanding at December 31, 2022 and 2021 (liquidation preference of $5,753 as of December 31, 2022)	**4,132**	4,132
Series B convertible preferred stock, $0.0001 par value, 54,689,627 shares authorized, issued and outstanding at December 31, 2022 and 2021 (liquidation preference of $60,000 as of December 31, 2022)	**59,855**	59,855
Total convertible preferred stock	**111,445**	111,445
Stockholders' deficit:		
Common stock, $0.0001 par value; 141,900,000 and 130,000,000 shares authorized, 7,139,216 and 6,831,357 shares issued and outstanding at December 31, 2022 and 2021, respectively	**1**	1
Additional paid-in capital	**2,625**	1,318
Accumulated deficit	**(133,338)**	(90,529)
Total stockholders' deficit	**(130,712)**	(89,210)
Total liabilities, convertible preferred stock and stockholders' deficit	**$ 61,774**	$ 35,151

The accompanying notes are an integral part of these consolidated financial statements.

Q32 BIO INC.
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(amounts in thousands, except share and per share data)

	Year Ended December 31,	
	2022	**2021**
Collaboration arrangement revenue	**$ 6,651**	$ —
Operating expenses:		
Research and development	**35,814**	29,929
General and administrative	**10,062**	6,764
Total operating expenses	**45,876**	36,693
Loss from operations	**(39,225)**	(36,693)
Change in fair value of convertible notes	**(2,402)**	—
Other income (expense), net	**(1,120)**	(324)
Total other income (expense), net	**(3,522)**	(324)
Loss before provision for income taxes	**(42,747)**	(37,017)
Provision for income taxes	**(62)**	(547)
Net loss and comprehensive loss	**$ (42,809)**	$ (37,564)
Weighted-average common shares—basic and diluted	**7,025,420**	6,470,930
Net loss per share attributable to common stockholders—basic and diluted	**$ (6.09)**	$ (5.81)

The accompanying notes are an integral part of these consolidated financial statements.

Q32 BIO INC.
CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(amounts in thousands, except share data)

	Series A Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2020	47,628,788	$47,458	6,500,000	$ 4,132	36,459,754	$39,865	6,222,829	$ 1	$ 450	$ (52,965)	$ (52,514)
Issuance of series B convertible preferred stock, net of issuance costs of $0.01 million	—	—	—	—	18,229,873	19,990	—	—	—	—	—
Exercise of stock options	—	—	—	—	—	—	417,479	—	115	—	115
Vesting of restricted stock	—	—	—	—	—	—	187,817	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	753	—	753
Net loss	—	—	—	—	—	—	—	—	—	(37,564)	(37,654)
Balance as of December 31, 2021	47,628,788	47,458	6,500,000	4,132	54,689,627	59,855	6,828,125	1	1,318	(90,529)	(89,210)
Exercise of stock options	—	—	—	—	—	—	**307,859**	—	**69**	—	**69**
Vesting of restricted stock	—	—	—	—	—	—	**3,232**	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	**1,238**	—	**1,238**
Net loss	—	—	—	—	—	—	—	—	—	**(42,809)**	**(42,809)**
Balance as of December 31, 2022	**47,628,788**	**$47,458**	**6,500,000**	**$ 4,132**	**54,689,627**	**$59,855**	**7,139,216**	**$ 1**	**$ 2,625**	**$ (133,338)**	**$ (130,712)**

The accompanying notes are an integral part of these consolidated financial statements.

Q32 BIO INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(amounts in thousands)

	Year Ended December 31,	
	2022	2021
Cash flows from operating activities:		
Net loss	**$(42,809)**	$(37,564)
Adjustments to reconcile net loss to net cash used in operating activities:		
Amortization of debt discount and issuance costs	**100**	102
Depreciation expense	**370**	47
Loss on disposal of property and equipment	**23**	—
Stock-based compensation expense	**1,238**	753
Non-cash lease expense	**776**	—
Change in fair value of convertible notes	**2,402**	—
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	**(1,209)**	(96)
Other noncurrent assets	**195**	(244)
Accounts payable	**(1,241)**	1,099
Operating lease liability	**(409)**	—
Accrued expenses and other current liabilities	**3,758**	2,924
Deferred revenue	**25,849**	—
Net cash used in operating activities	**(10,957)**	(32,979)
Cash flows from investing activities:		
Purchases of property and equipment	**(2,485)**	(157)
Proceeds from sale of property and equipment	**19**	—
Net cash used in investing activities	**(2,466)**	(157)
Cash flows from financing activities:		
Proceeds from issuance of preferred stock, net of issuance costs	**—**	19,990
Proceeds from exercise of common stock options	**69**	115
Proceeds from issuance of convertible debt	**30,000**	—
Net cash provided by financing activities	**30,069**	20,105
Net increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	**16,646**	(13,031)
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of period	**32,894**	45,925
Cash, cash equivalents, restricted cash and restricted cash equivalents at end of period	**$ 49,540**	$ 32,984
Supplemental disclosure of non-cash operating, investing and financing activities:		
Property and equipment additions included in accounts payable and accrued expenses	**$ —**	$ 20
Right-of-use asset obtained in exchange for new operating lease liability	**$ 7,666**	$ —

The accompanying notes are an integral part of these consolidated financial statements.

Q32 BIO INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of the Business

Q32 Bio Inc. (the Company) was formed on April 10, 2017 as Admirx, Inc. under the laws of the state of Delaware and is headquartered in Waltham, Massachusetts. On March 20, 2020, the Company changed its name to Q32 Bio Inc. The Company aims to bring safer, more efficacious therapeutics to patients suffering from a wide range of devastating autoimmune and inflammatory diseases, starting with those rooted in the complement system and interleukin-7 (IL-7) signaling pathways.

Since its inception, the Company's operations have been focused on organizing and staffing, business planning, raising capital, establishing the Company's intellectual property portfolio and performing research and development of its product candidates, programs and platform. The Company has primarily funded its operations with proceeds from the sale of convertible preferred stock, convertible notes, venture debt and its collaboration arrangement.

Risks and Uncertainties

The Company is subject to risks and uncertainties common to early-stage companies in the biotechnology industry, including but not limited to, risks associated with completing preclinical studies and clinical trials, obtaining regulatory approvals for product candidates, development by competitors of new biopharmaceutical products, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Programs currently under development will require significant additional research and development efforts, including preclinical and clinical testing, and will need to obtain regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's product development efforts are successful, it is uncertain when, if ever, the Company will realize revenue from product sales.

Liquidity and Going Concern

As of December 31, 2022, the Company had cash and cash equivalents of $43.9 million and an accumulated deficit of $133.3 million. The Company had a net working capital deficiency of $11.0 million for the year ended December 31, 2022, and a net loss of $42.8 million and $37.6 million for the years ended December 31, 2022 and 2021, respectively. The Company has funded its net losses principally through the sale of preferred stock, convertible notes, debt, and proceeds from a collaboration arrangement. The Company expects to experience negative cash flows from operations and net losses for the foreseeable future as it continues to invest significantly in research and development of its product candidates and platform.

All of the Company's products candidates are in development. There can be no assurance that the Company's research and development will be successfully completed, that adequate protection for the Company's intellectual property will be obtained, that any products candidates developed will obtain necessary government regulatory approval or that any approved products will be commercially viable. Even if the Company's product development efforts are successful, it is uncertain when, if ever, the Company will generate significant revenue from product sales. The Company operates in an environment of rapid change in technology and substantial competition. In addition, the Company is dependent upon the services of its employees and consultants.

The Company expects its existing cash and cash equivalents will not be sufficient to allow the Company to fund its operating expenses and capital expenditures requirements through at least the next twelve months from the issuance of these consolidated financial statements.

As a result, the Company will need substantial additional funding to support its continued operations and growth strategy. Until such a time as the Company can generate significant revenue from product sales, if ever, the Company expects to finance its operations through the sale of equity, debt financings or other capital sources, including collaborations with other companies or other strategic transactions. The Company may be unable to raise additional funds or enter into such other agreements on terms acceptable to the Company, or at all. If the Company fails to raise capital or enter into such agreements, the Company may have to significantly delay, scale back or discontinue the development and commercialization of one or more of its product candidates or delay its pursuit of potential in-licenses or acquisitions. The Company is seeking to complete a transaction with Homology Medicines, Inc. (Homology) as well as complete a concurrent private placement to raise additional capital. However, there can be no assurances that such transactions will be completed.

Based on its recurring losses from operations incurred since inception, the expectation of continuing operating losses for the foreseeable future, and the need to raise additional capital to finance its future operations, the Company has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that these consolidated financial statements are issued.

The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of these uncertainties described above. Accordingly, the consolidated financial statements have been prepared on a basis that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

2. Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (GAAP). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Update (ASU) of the Financial Accounting Standards Board (FASB).

Principles of Consolidation

The accompanying consolidated financial statements include those of the Company and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts in the financial statements and accompanying notes. Actual results could materially differ from those estimates. Management considers many factors in selecting appropriate financial accounting policies and controls, and in developing the estimates and assumptions that are used in the preparation of these consolidated financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. Significant estimates and assumptions reflected in these consolidated financial statements include, but are not limited to, the valuation of common stock awards, the valuation of convertible notes, the accruals of research and development expenses, the identification of material rights and estimation of standalone selling price for the identified performance obligations in the collaboration agreement and the inputs and assumptions to the over-time recognition of revenue under the collaboration agreement. Estimates are periodically reviewed considering changes in circumstances, facts and historical experience. Actual results may differ from the Company’s estimates.

Segment Information

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker, or decision-making group, in making decisions on how to allocate resources and assess performance. The Company's chief operating decision maker is the chief executive officer (CEO). The Company and the CEO view the Company's operations and manage its business as one operating segment. All material long-lived assets of the Company reside in the United States.

Foreign Currency Transactions

The Company's functional currency is the United States dollar. Foreign currency transaction gains and losses are recorded in the statement of operations and comprehensive loss.

Concentrations of Credit Risk and Significant Suppliers

Financial instruments that potentially expose the Company to credit risk primarily consist of cash, cash equivalents, restricted cash and restricted cash equivalents. The Company maintains its cash, cash equivalents, restricted cash and restricted cash equivalents balances with accredited financial institutions and, consequently, the Company does not believe it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

The Company's cash management limits investment to investment-grade securities with the objective to preserve capital and to maintain liquidity until the funds can be used in business operations. The Company maintains its cash in bank deposit accounts that are Federal Deposit Insurance Corporation (FDIC) insured up to $250,000. At times, the Company's bank accounts may exceed the federal insurance limit.

The Company is dependent on contract development and manufacturing organizations (CDMOs) to supply products for research and development activities in its programs. In particular, the Company relies and expects to continue to rely on a small number of manufacturers to supply it with its requirements for the active pharmaceutical ingredients, other raw materials and formulated drugs related to these programs. These programs could be adversely affected by a significant interruption in the supply of active pharmaceutical ingredients, other raw materials and formulated drugs. The Company is also dependent on contract research organization (CROs) which provide services related to the research and development activities in its programs.

Off-Balance Sheet Risk

As of December 31, 2022 and 2021, the Company had no off-balance-sheet risk such as foreign exchange contracts, option contracts or other foreign hedging arrangements.

Fair Value Measurements

Certain assets and liabilities are carried at fair value under GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.

Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

Property and Equipment

Property and equipment are stated at cost, net of accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the respective assets. Major additions and betterments are capitalized; maintenance and repairs, which do not improve or extend the life of the respective assets, are charged to operations as incurred. Upon retirement or sale, the cost and related accumulated depreciation of assets disposed of are removed from the accounts and any resulting gain or loss is included in loss from operations.

	Estimated Useful Life (Years)
Lab equipment	5
Furniture and fixtures	3
Computer equipment	3
Leasehold improvements	Shorter of useful life or term of associated lease

Leases

The Company adopted FASB ASU No. 2016-02, *Leases (ASC 842)*, effective January 1, 2021 using the modified retrospective approach and utilizing the effective date as its date of initial application.

The Company evaluates whether an arrangement is or contains a lease at contract inception. If a contract is or contains a lease, lease classification is determined at lease commencement, which represents the date at which the underlying asset is made available for use by the Company. The Company's lease terms are generally measured at the respective lease's noncancelable term and exclude any optional extension terms as the Company is not reasonably certain to exercise such options. The Company elected the short-term lease exemption and therefore does not recognize lease liabilities and right of use assets for lease arrangements with the original lease terms of twelve months or less.

Lease liabilities represent the Company's obligation to make lease payments under a lease arrangement. Lease liabilities are measured as the present value of fixed lease payments, discounted using an incremental borrowing rate, as interest rates implicit in the Company's lease arrangements are generally not readily determinable. The Company elected the practical expedient to not separate lease and non-lease components for its real estate leases and therefore both are considered when determining the lease payments in a lease arrangement. Variable lease costs are expensed as incurred.

The incremental borrowing rate represents the interest rate at which the Company could borrow a fully collateralized amount equal to the lease payments, over a similar term, in a similar economic environment. The Company determines the incremental borrowing rate at lease commencement, generally using a synthetic credit rating based on the Company's financial position and negative cash flows, factoring in adjustments for additional risks based on the Company's economic condition, a survey of comparable companies with similar credit and financial profiles, as well as additional market risks, as may be applicable.

Right-of-use assets represent the Company's right to use an underlying asset over its lease term. Right-of-use assets are initially measured as the associated lease liability, adjusted for prepaid rent and tenant incentives. The Company remeasures right-of-use assets and lease liabilities when a lease is modified, and the modification is not accounted for as a separate contract. A modification is accounted for as a separate contract if the modification grants the Company an additional right of use not included in the original lease agreement and the increase in

lease payments is commensurate with the additional right of use. The Company assesses its right-of-use assets for impairment consistent with its policy for impairment of long-lived assets held and used in operations.

Cash, Cash Equivalents, Restricted Cash and Restricted Cash Equivalents

The Company considers all highly liquid investments that are readily convertible into cash with maturities of three months or less at the date of purchase to be cash equivalents. The Company maintains its cash in bank deposits accounts that are FDIC insured up the $250,000. At times, the Company's bank accounts may exceed the federal insurance limits. Cash equivalents are comprised of money market accounts invested in U.S. Treasury securities.

Restricted cash and restricted cash equivalents are comprised of deposits held by financial institutions as collateral for the company's venture debt and used to collateralize letters of credit related to the Company's lease arrangements.

The company includes the restricted cash and restricted cash equivalents balance together with its cash and cash equivalents when reconciling beginning-of-period and end-of-period total amounts shown on the consolidated statements of cash flows.

Cash, cash equivalents, restricted cash and restricted cash equivalents consisted of the following (in thousands):

	December 31,	
	2022	2021
Cash and cash equivalents	**$43,893**	$32,247
Restricted cash and cash equivalents	**5,647**	647
Total cash, cash equivalents, restricted cash and restricted cash equivalents	**$49,540**	$32,894

Impairment of Long-Lived Assets

The Company continually monitors events and changes in circumstances that could indicate carrying amounts of long-lived assets may be impaired, and assesses their recoverability based upon estimated future undiscounted future cash flows expected to be generated by the long-lived assets. If the estimated aggregate undiscounted cash flows are less than the carrying amount of the long-lived assets, an impairment charge, calculated as the amount by which the carrying amount of the assets exceeds the estimated fair value of the assets, is recorded. The estimated fair value of the long-lived assets is determined based on the estimated discounted cash flows expected to be generated from the long-lived assets.

Convertible notes

During 2022, the Company recognized a liability as a result of the issuance of convertible promissory notes (the Convertible Notes). The Company accounts for all Convertible Notes issued under the fair value option election of ASC 825, *Financial Instruments* (ASC 825). The financial instrument is initially measured at its issue-date estimated fair value and then subsequently remeasured at estimated fair value on a recurring basis at each reporting period date. The estimated fair value adjustment is recognized within other income (expense) in the accompanying consolidated statements of operations and the portion of the fair value adjustment attributed to a change in the instrument-specific credit risk is recognized as a component of other comprehensive loss, if any.

Debt and Warrant Issuance Costs

The carrying value of the Company's venture debt was recorded net of issuance costs and discount relating to the issuance of warrants. The amounts are amortized over the term of the debt using the effective interest method and recognized as interest expense.

Convertible Preferred Stock

The Company records all convertible preferred stock upon issuance at its respective fair value or original issuance price less issuance costs, as stipulated by its terms. The Company classifies its convertible preferred stock outside of stockholders' deficit as the redemption of such shares is outside the Company's control in certain circumstances, including upon liquidation or sale, as holders of the convertible preferred shares could cause redemption of the shares in these situations. The Company does not adjust the carrying value of the convertible preferred stock to redemption value until the contingent events that could give rise to redemption are considered probable of occurring.

Revenue Recognition

Under ASC Topic 606, *Revenue from Contracts with Customers* (Topic 606), an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration that the entity expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price, including variable consideration, if any; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the entity satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that the entity will collect the consideration to which it is entitled in exchange for the goods or services it transfers to the customer.

Once a contract is determined to be within the scope of Topic 606, the Company assesses the goods or services promised within each contract and determines those that are performance obligations.

Arrangements that include rights to additional goods or services that are exercisable at a customer's discretion are generally considered options. The Company assesses if these options provide a material right to the customer and if so, they are considered performance obligations. The identification of material rights requires judgments related to the determination of the value of the underlying good or service relative to the option exercise price. The exercise of a material right is accounted for as a contract modification for accounting purposes.

The Company assesses whether each promised good or service is distinct for the purpose of identifying the performance obligations in the contract. This assessment involves subjective determinations and requires management to make judgments about the individual promised goods or services and whether such are separable from the other aspects of the contractual relationship. Promised goods and services are considered distinct provided that: (i) the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer (that is, the good or service is capable of being distinct) and (ii) the entity's promise to transfer the good or service to the customer is separately identifiable from other promises in the contract (that is, the promise to transfer the good or service is distinct within the context of the contract). In assessing whether a promised good or service is distinct, the Company considers factors such as the license terms, the research, manufacturing and commercialization capabilities of the collaboration partner and the availability of the associated expertise in the general marketplace. The Company also considers the intended benefit of the contract in assessing whether a promised good or service is separately identifiable from other promises in the contract. If a promised good or service is not distinct, an entity is required to combine that good or service with other promised goods or services until it identifies a bundle of goods or services that is distinct.

The transaction price is determined and allocated to the identified performance obligations in proportion to their stand-alone selling prices (SSP) on a relative SSP basis. SSP is determined at contract inception and is not updated to reflect changes between contract inception and when the performance obligations are satisfied. Determining the SSP for performance obligations requires significant judgment. In developing the SSP for a performance obligation, the Company considers applicable market conditions and relevant entity-specific factors, including factors that were contemplated in negotiating the agreement with the customer and estimated costs. The Company validates the SSP for performance obligations by evaluating whether changes in the key assumptions used to determine the SSP will have a significant effect on the allocation of arrangement consideration between multiple performance obligations.

If the consideration promised in a contract includes a variable amount, the Company estimates the amount of consideration to which it will be entitled in exchange for transferring the promised goods or services to a customer. The Company determines the amount of variable consideration by using the expected value method or the most likely amount method. The amount of variable consideration included in the transaction price is constrained to the amount for which it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty related to the variable consideration is resolved. At the end of each subsequent reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis in the period of adjustment.

If an arrangement includes development and regulatory milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the Company's control or the licensee's control, such as regulatory approvals, are generally not considered probable of being achieved until those approvals are received.

For arrangements with licenses of intellectual property that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes royalty revenue and sales-based milestones at the later of (i) when the related sales occur, or (ii) when the performance obligation to which the royalty has been allocated has been satisfied.

In determining the transaction price, the Company adjusts consideration for the effects of the time value of money if the timing of payments provides the Company with a significant benefit of financing. The Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the licensees and the transfer of the promised goods or services to the licensees will be one year or less.

The Company recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) each performance obligation is satisfied, either at a point in time or over time, and if over time recognition is based on the use of an output or input method.

Collaboration Arrangement

The Company analyzes first its collaboration arrangement to assess whether it is within the scope of FASB ASC Topic 808, Collaborative Arrangements (ASC 808) to determine whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards that are dependent on the commercial success of such activities. To the extent the arrangement is within the scope of ASC 808, the Company assesses whether aspects of the arrangement between the Company and its collaboration partner are within the scope of other accounting literature, including ASC 606. If it is concluded that some or all aspects of the arrangement represent a transaction with a customer, the

Company will account for those aspects of the arrangement within the scope of ASC 606. ASC 808 provides guidance for the presentation and disclosure of transactions in collaborative arrangements, but it does not provide recognition or measurement guidance.

Therefore, if the Company concludes a counterparty to a transaction is not a customer or otherwise not within the scope of ASC 606, the Company considers the guidance in other accounting literature, including the guidance in ASC 606, as applicable or by analogy to account for such transaction. The classification of transactions under the Company's arrangements is determined based on the nature and contractual terms of the arrangement along with the nature of the operations of the participants.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and Development expenses are comprised of costs incurred in performing research and development activities, including salaries, stock-based compensation and benefits, costs for clinical research organizations and other outsourced activities; laboratory supplies; technology licenses, software and other information technology support; facilities and depreciation.

Upfront payments and milestone payments made for the licensing of technology are expensed as research and development expenses in the period in which they are incurred. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed.

The Company has entered into various research and development related contracts with external parties. The payments under these agreements are recorded as research and development expenses as the underlying services are performed or the goods are received. The Company records accrued liabilities for estimated ongoing research costs. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the research activities, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the Company's estimates. The Company's historical accrual estimates have not been materially different from the actual costs.

Research and Development Tax Incentive

The Company is eligible under the AusIndustry Research and Tax Development Tax Incentive Program to obtain a cash amount from the Australian Taxation Office (ATO). The tax incentive is available to the Company on the basis of specific criteria with which the Company must comply related to research and development expenditures in Australia. The Company adopted on January 1, 2022, ASU No. 2021-10, *Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance*. The Company applied a grant accounting model by analogy to IAS 20. The Company recognizes the Research and Development Tax Incentive (grant) as it incurs costs eligible for reimbursement under the AusIndustry Research and Tax Development Tax Incentive Program when it is reasonably assured that the grant funding will be received, as evidenced through enrollment in the program and when the applicable conditions under the program have been met. During the years ended December 31, 2022 and 2021, respectively, the Company recorded $0.4 million and $0.7 million of research and development tax incentives as contra-research and development expense over the periods in which the Company recognized the eligible research and development activities taking place in Australia.

Patent Costs

The Company expenses all costs as incurred in connection with patent applications, including direct application fees, and the legal and consulting expenses related to making such applications, and such costs are included in general and administrative expenses within the Company's statement of operations.

Stock-Based Compensation

The Company accounts for stock-based awards in accordance with ASC Topic 718, *Compensation – Stock Compensation* (ASC 718). ASC 718 requires all stock-based awards issued to employees and members of the Company's board of directors for their services to be recognized as expense in the statements of operations based on their grant date fair values. The Company uses the value of its common stock to determine the fair value of its stock-based awards. For stock options and time-based restricted stock awards, the Company expenses the fair value of the awards on a straight-line basis over each award's service period, which is generally the period in which the related services are received. For performance-based stock awards, the Company uses the accelerated attribution method to expense the awards over the implicit service period based on the probability of achieving the performance conditions. The Company accounts for stock-based awards to non-employees consistently with the accounting for awards to employees and measures stock-based awards granted to non-employees based on their grant date fair value and recognizes the resulting value as stock-based compensation expense during the period the related services are rendered. The Company has not issued any stock-based awards with market-based vesting conditions. The Company accounts for forfeitures as they occur.

The Company's equity incentive plan allows for the issuance of restricted stock awards to employees and non-employee consultants that may be subject to vesting. The unvested shares of any restricted stock awards are held in escrow as the stock award vests or until award holder termination, whichever occurs first. In the event of a sale of the Company, the Company has the obligation to repurchase at cost, the portion of unvested stock awards from the award holder. For all unvested stock awards, a liability is established related to the Company's obligation for unvested awards at cost.

Determination of Fair Value of Common Stock on Grant Dates

The fair value of each restricted common stock award is estimated on the date of grant based on the fair value of the Company's common stock on that same date. The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model, which requires inputs based on certain subjective assumptions, including the fair value of the Company's common stock, expected stock price volatility, the expected term of the award, the risk-free interest rate, and expected dividends (see Note 11). The Company has been a private company and lacks company-specific historical and implied volatility information for its stock. Therefore, it estimates its expected stock price volatility based on the historical volatility of publicly traded peer companies. The expected term of options was calculated using the simplified method, which represents the average of the contractual term of the option and the weighted-average vesting period of the option. The Company uses the simplified method because it does not have sufficient historical option exercise data to provide a reasonable basis upon which to estimate expected term. The expected term of options granted to non-employees is equal to the contractual term of the option award. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends on common stock and does not expect to pay any cash dividends in the foreseeable future.

Due to the absence of an active market for the Company's common stock, the Company and the board of directors were required to determine the fair value of the Company's common stock at the time of each grant of a stock-based award. The Company estimated the fair value of its common stock utilizing methodologies in accordance with the framework of the American Institute of Certified Public Accountants' Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*. In determining the exercise prices for options granted, the Company has considered the estimated fair value of the common stock as of the measurement date. The estimated fair value of the common stock has been determined at each grant date based upon a variety of factors, including prices paid for the Company's convertible preferred stock and the rights, preferences, and privileges of the Company's Preferred Stock and common stock; the Company's stage of development and status of technological developments within the Company's research; the illiquid nature of securities in a private company; the prospects of a liquidity event; and the current business climate in the

marketplace. Significant changes to the key assumptions underlying the factors used could result in different fair values of common stock at each valuation date. The Company's common stock valuations were prepared using an option pricing method, or OPM. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. There are significant judgments and estimates inherent in the determination of the fair value of the Company's common stock. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of preferred securities, the superior likelihood of, achieving a liquidity event, such as an IPO or sale. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date.

The Company classifies stock-based compensation expense in its statements of operations and comprehensive loss in the same manner in which the award recipient's payroll costs are classified or in which the award recipient's service payments are classified.

Income Taxes

Income taxes are recorded in accordance with FASB ASC Topic 740, *Income Taxes* (ASC 740), which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the consolidated financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the consolidated financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Changes in deferred tax assets and liabilities are recorded in the provision for income taxes. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income and, to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of the deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future taxable profits expected and considering prudent and feasible tax planning strategies. Should the actual amounts differ from these estimates, the amount of the Company's valuation allowance could be materially impacted. Changes in these estimates may result in significant increases or decreases to the tax provision in a period in which such estimates are changed, which in turn would affect net income or loss.

Income taxes have been accounted for using the asset and liability method. Under the asset and liability method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates applicable to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the period that includes the enactment date. A valuation allowance against deferred tax assets is recorded if, based upon the weight of all available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company accounts for uncertainty in income taxes recognized in the consolidated financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more-likely-than-not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the consolidated financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax reserves, or unrecognized tax benefits, that are considered appropriate as well as the related net interest and penalties.

Comprehensive Income (Loss)

Comprehensive loss includes net loss as well as other changes in stockholders' equity (deficit) that result from transactions and economic events other than those with stockholders. There was no difference between net loss and comprehensive loss for each of the periods presented in the accompanying financial statements.

Net Loss per Share Attributable to Common Stockholders

Net loss per share attributable to common stockholders is determined using the two-class method, which is an earnings allocation formula that determines net loss per share for the holders of the Company's common shares and participating securities. The Company's preferred stock contains participation rights in any dividend paid by the Company and is deemed to be a participating security. In periods of income, the convertible preferred stock would be considered participating securities because the shares include rights to participate in dividends with the common stock; however, the convertible preferred stock is not considered a participating security in periods of loss as they do not have an obligation to share in the Company's net losses and are not included in the calculation of net loss per share in the periods in which a net loss is recorded. Net loss attributable to common stockholders is equal to the net loss for the period.

Diluted net loss per share is computed using the more dilutive of (a) the two-class method or (b) the treasury stock method and if-converted method. The Company allocates earnings first to preferred stockholders based on dividend rights and then to common and preferred stockholders based on ownership interests. The weighted-average number of common shares included in the computation of diluted net loss gives effect to all potentially dilutive common equivalent shares, including outstanding stock options and Preferred Stock. Common stock equivalent shares are excluded from the computation of diluted net loss per share if their effect is antidilutive. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is generally the same as basic net loss per share attributable to common stockholders since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Subsequent Event Considerations

The Company considers events or transactions that occur after the balance sheet date but prior to the issuance of the financial statements to provide additional evidence for certain estimates or to identify matters that require additional disclosure. The Company has evaluated events occurring after the date of its consolidated balance sheet through December 15, 2023, the date of these consolidated financial statements were available to be issued. See Note 17.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In May 2021, the FASB issued ASU No. 2021-04, *Earnings Per Share (Topic 260), Debt – Modifications and Extinguishments (Subtopic 470-50), Compensation – Stock Compensation (Topic 718), and Derivatives and Hedging – Contracts in Entity's Own Equity (Subtopic 815-40)*. This standard has an effective and transition date of January 1, 2022. This standard clarifies and reduces diversity in an issuer's accounting for modifications or exchanges of freestanding equity-classified written call options, including warrants, that remain equity-classified after modification or exchange. The standard requires an entity to treat a modification or an exchange of a freestanding equity-classified written call option that remains equity-classified after the modification or exchange as an exchange of the original instrument for a new instrument. The standard additionally provides guidance on measuring and recognizing the effect of a modification or an exchange. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In November 2021, the FASB issued ASU No. 2021-10, *Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance.* This standard has an effective and transition date of January 1, 2022. This standard increases the transparency of transactions with the government that are accounted for by applying a grant or contribution accounting model, and aims to reduce diversity that currently exists in the recognition, measurement, presentation, and disclosure of government assistance received by business entities due to the lack of specific authoritative guidance in GAAP. This standard requires an entity to provide information regarding the nature of the transaction with a government and the related accounting policy used to account for this transaction, the line item on the consolidated balance sheet and consolidated statement of operations and comprehensive loss that are affected by the transaction and the amounts applicable to each financial statement line item, and the significant terms and conditions of the transaction, including commitments and contingencies. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt – Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity's Own Equity (Subtopic 815-40)* (ASU 2020-06), which reduces the number of accounting models for convertible debt instruments and convertible preferred stock as well as amends the derivatives scope exception for contracts in an entity's own equity. ASU 2020-06 is effective for the Company on January 1, 2024, with early adoption permitted. The Company early adopted on January 1, 2022. The early adoption of this standard did not have a material impact on the Company's consolidated financial statements.

Recently Issued Accounting Standards Not Yet Adopted

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326) – Measurement of Credit Losses on Financial Instruments,* which has been subsequently amended by ASU No. 2018-19, ASU No. 2019-04, ASU No. 2019-05, ASU No. 2019-10, ASU No. 2019-11 and ASU No. 2020-03 (ASU 2016-13). The provisions of ASU 2016-13 modify the impairment model to utilize an expected loss methodology in place of the currently used incurred loss methodology and require a consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is effective for the Company on January 1, 2023, with early adoption permitted. The adoption of this standard is not expected to have a material impact on the Company's consolidated financial statements and related disclosures.

3. Fair Value Measurements

The carrying values of the Company's prepaid expenses and other current assets, accounts payable, and accrued expenses and other current liabilities approximate their fair value due to their short-term nature. The carrying value of the Company's term loan as of December 31, 2022 (see Note 8) approximated fair value based on interest rates currently available to the Company.

The tables below presents information about the Company's assets and liabilities that are regularly measured and carried at fair value on a recurring basis at December 31, 2022 and 2021 and indicate the level within the fair value hierarchy of the valuation techniques the Company utilized to determine such fair value, which is described further within Note 2, Summary of Significant Accounting Policies.

Financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2022 are summarized as follows (in thousands):

Description	Balance as of December 31, 2022	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Assets				
Cash equivalents:				
Money market funds	$ 42,496	$ 42,496	$ —	$ —
Restricted cash equivalents:				
Money market funds	$ 5,000	$ 5,000		
Total	$ 47,496	$ 47,496	$ —	$ —
Liabilities				
Convertible Notes	$ 32,402	$ —	$ —	$ 32,402
Total	$ 32,402	$ —	$ —	$ 32,402

Financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2021 are summarized as follows (in thousands):

Description	Balance as of December 31, 2021	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Assets				
Cash equivalents:				
Money market funds	$ 29,899	$ 29,899	$ —	$ —
Total	$ 29,899	$ 29,899	$ —	$ —

Money market funds were valued by the Company using quoted prices in active markets for identical securities, which represent a Level 1 measurement within the fair value hierarchy. During the years ended December 31, 2022 and 2021, there were no transfers between Level 1, Level 2 and Level 3. There have been no impairments of the Company's assets measured and carried at fair value during the years ended December 31, 2022 and 2021.

The Company issued convertible notes (Convertible Notes) totaling $30,000,000 during the year ended December 31, 2022. The Company concluded that the Convertible Notes and its related features are within the scope of ASC 825, *Financial Instruments*, as a combined financial instrument, and the Company elected the fair value option where changes in fair value of the Convertible Notes are measured through the accompanying consolidated statement of operations and comprehensive loss until settlement. The Convertible Notes liability represents a Level 3 measurement within the fair value hierarchy as it has been valued using certain unobservable inputs. These inputs include the underlying fair value of the equity instrument into which the Convertible Notes are convertible. The fair value is based on significant inputs not observable in the market, namely potential financing scenarios, the likelihood of such scenarios, the expected time for each scenario to occur, and the required market rates of return utilized in modeling these scenarios.

Year ending December 31, 2022	Scenario 1	Scenario 2
Probability of each scenario	76.4%	23.6%
Expected Term (years)	0.75	0.75
Required market rates of return	15.0%	15.0%

The Convertible Notes had an estimated fair value of $32.4 million as of December 31, 2022. The Company recorded a charge of $2.4 million on the change in estimated fair value during the year ended December 31, 2022. There was no change in fair value attributable to the instrument-specific credit risk for the year ended December 31, 2022.

4. Property and Equipment, Net

Property and equipment, net consisted of the following as of (in thousands):

	December 31,	
	2022	2021
Lab equipment	$1,382	$ 220
Furniture and fixtures	341	—
Computer equipment	85	85
Leasehold improvements	935	—
Total property and equipment	2,743	305
Less accumulated depreciation	(467)	(102)
Property and equipment, net	$2,276	$ 203

Depreciation expense for the years ended December 31, 2022 and 2021 was $370 thousand and $47 thousand, respectively. No impairment losses occurred in 2022 and 2021. The Company had a loss on disposal of fixed assets of $23 thousand for the year ended December 31, 2022.

5. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following as of (in thousands):

	December 31,	
	2022	2021
Payroll tax credit	$ 948	$ 627
Prepaid external research and development	1,329	529
Research credit receivable	116	282
Prepaid expenses	421	240
Other	146	73
Total prepaid expenses and other current assets	$2,960	$1,751

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of the following as of (in thousands):

	December 31,	
	2022	2021
Accrued external research and development	$4,077	$2,477
Accrued compensation and related expenses	2,791	1,489
Accrued interest	376	—
Accrued taxes payable	570	—
Operating lease liability, current	471	—
Accrued professional services and other	1,212	574
Total accrued expenses and other current liabilities	$9,497	$4,540

7. Commitments and Contingencies

As of December 31, 2022, the Company has several ongoing clinical studies in various clinical trial stages. Its most significant contracts relate to agreements with clinical research organizations (CROs) for clinical trials and preclinical studies and contract development and manufacturing organizations (CMOs), which the Company enters into in the normal course of business. The contracts with CROs and CMOs are generally cancellable, with notice, at the Company's option.

Operating lease

The Company maintained a month-to-month operating lease agreement for its office and laboratory space until the company moved to its current corporate headquarters in Waltham, Massachusetts. The lease for the Company's corporate headquarters provides approximately 15,000 rentable square feet for general office use and research lab facilities. The lease commencement date began on January 1, 2022 and the Company did not take control or have the right to use the leased property until this time. The lease term ends in December 2031. The Company has an option to extend the lease term for an additional five years. The initial rent for the office space is approximately $970 thousand per year, increasing every year by 3% for total aggregate payment of $11.1 million. Upon the commencement date, the Company established a right-of-use asset and lease liability on the consolidated balance sheet. As part of the agreement, the Company arranged for a letter of credit for $647 thousand as a security for lease, which is considered restricted cash and included as restricted cash and restricted cash equivalents in the consolidated balance sheet. The Company received $0.4 million in a tenant improvement allowance that was applied against the right-of-use asset. Rent expense for the years ended December 31, 2022 and 2021 was $1.3 million and $0.6 million, respectively.

As of December 31, 2022, the Company's operating lease had a weighted-average remaining lease term of nine years and weighted average incremental borrowing rate of 7.5%.

Amounts reported in the consolidated balance sheet for leases where the Company is the lessee as of December 31, 2022 and 2021 were as follows (in thousands):

	December 31,	
	2022	2021
Assets:		
Operating lease right-of-use assets	**$6,890**	$—
Total operating lease right-of-use assets	**$6,890**	$—
Liabilities:		
Current:		
Operating lease liabilities	**$ 471**	$—
Noncurrent:		
Operating lease liabilities, net of current portion	**6,786**	—
Total operating lease liabilities	**$7,257**	$—

The following table summarizes operating lease costs for the years ended December 31, 2022 and 2021 (in thousands):

	December 31,	
	2022	2021
Fixed lease costs	**$1,232**	$—
Variable lease costs	**103**	—
Short-term lease costs	**—**	642
Total lease costs	**$1,335**	$642

Future minimum lease payments under non-cancelable lease agreement as of December 31, 2022 and a reconciliation to the carrying amount of the lease liabilities presented in the consolidated balance sheet are as follows (in thousands):

	Minimum Rental Payments
2023	$ 999
2024	1,029
2025	1,060
2026	1,092
2027	1,124
Thereafter	4,845
Total minimum lease payments	10,149
Less imputed interest	(2,892)
Total lease liability	$ 7,257
Lease liability, current portion	$ 471
Lease liability, net of current portion	6,786
Total	$ 7,257

License Agreements

License Agreement with the University of Colorado

In August 2017, the Company entered into an exclusive license agreement, as amended in February 2018, September 2018, and April 2019 (the Colorado License Agreement), with The Regents of the University of Colorado (Colorado), pursuant to which the Company obtained worldwide, royalty-bearing, sublicensable licenses under certain patents and know-how owned by Colorado and Medical University of South Carolina (MUSC) relating to the research, development and commercialization of ADX-097. The licenses granted to the Company are exclusive with respect to certain patent families and know-how and non-exclusive with certain other patent families and know-how. The licenses granted to the Company are also subject to certain customary retained rights of Colorado and MUSC and rights of the United States government owing to federal funding giving rise to inventions covered by the licensed patents. the Company agreed to use commercially reasonable efforts to develop, manufacture and commercialize ADX-097, including by using commercially reasonable efforts to achieve specified development and regulatory milestones by specified dates.

In addition, the Company agreed to pay Colorado (i) development and sales milestone payments in an aggregate amount of up to $2.2 million per licensed product for the first three products, (ii) tiered royalty rates on cumulative net sales of licensed products in the low single digit percentages, (iii) 15% of sublicense income and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents. the Company's obligation to pay royalties to Colorado commences, on a licensed product-by-licensed product and country-by-country basis, from the first commercial sale of a licensed product in any country and expires on the later of (a) the last to expire valid claim within the licensed patents covering such licensed product in such country, and (b) 20 years following the effective date of the Colorado License Agreement, or April 2037 (the Royalty Term).

Unless earlier terminated by either party pursuant to its terms, the Colorado License Agreement will expire upon the expiration of the Royalty Term in all countries. The Company may terminate the Colorado License Agreement for convenience upon providing prior written notice to Colorado. Colorado may terminate the Colorado License Agreement or convert the Company's exclusive license to a non-exclusive license if the Company breaches certain obligations under the Colorado License Agreement and fails to cure such breach. The Colorado License Agreement will terminate automatically upon the Company's dissolution, insolvency, or bankruptcy.

During the years ended December 31, 2022 and 2021, the Company recorded research and development expense of $50 thousand and zero, respectively for milestone related to the Colorado License Agreement. The financial statements as of December 31, 2022 and 2021 do not include liabilities with respect to royalty fees on the license agreement as the Company has not yet generated revenue and the achievement of certain milestones is not yet probable.

License Agreement with Bristol-Myers Squibb Company

In September 2019, the Company entered into a license agreement, as amended in August 2021 and July 2022 (the BMS License Agreement), with Bristol-Myers Squibb Company (BMS), pursuant to which the Company obtained sublicensable licenses from BMS to research, develop and commercialize licensed products, including bempikibart, for any and all uses worldwide. The licenses granted to the Company are exclusive with respect to BMS's patent rights and know-how relating to certain antibody fragments (including certain fragments of bempikibart) and non-exclusive with respect to BMS's patent rights and know-how relating to the composition of matter and use of a specific region of bempikibart. BMS retained the right for it and its affiliates to use the exclusively licensed patents and know-how for internal, preclinical research purposes. Under the BMS License Agreement, the Company is prohibited from engaging in certain clinical development or commercialization of any antibody other than a licensed compound with the same mechanism of action until the earlier of the expiration of Q32's obligation to pay BMS royalties or September 2029.

In consideration for the license, the Company made an upfront payment to BMS of $8 million, issued 6,628,788 Series A preferred shares to BMS and agreed to use commercially reasonable efforts to develop and commercialize at least one licensed product in key geographic markets. In addition, the Company agreed to pay BMS (i) development and regulatory milestone payments in aggregate amounts ranging from $32 million to $49 million per indication for the first three indications and commercial milestone payments in an aggregate amount of up to $215 million on net sales of licensed products, (ii) tiered royalties ranging from rates in the mid-single digit percentages to up to 10% of net sales, with increasing rates depending on the cumulative net sales, (iii) up to 60% of sublicense income, which percentage decreases based on the development stage of bempikibart at the time of the sublicensing event, and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents.

The Company's obligation to pay BMS royalties under subsection (ii) above commences, on a licensed product-by-licensed product and country-by-country basis on the first commercial sale of a licensed product in a country and expires on the later of (x) 12 years from the first commercial sale of such Licensed Product in such country, (y) the last to expire licensed patent right covering bempikibart or such licensed product in such country, and (z) the expiration or regulatory or marketing exclusivity for such licensed product in such country (Royalty Term). If the Company undergoes a change of control prior to certain specified phase of development, the development and milestone payments are subject to increase by a low double digit percentage and the royalty rates are subject to increase by a low sub single digit percentage.

Unless terminated earlier by either party pursuant to its terms, the BMS License Agreement will expire on a country-by-country and licensed product-by-licensed product basis upon the expiration of the last to expire Royalty Term with respect to such licensed product in such country. Either party may terminate the BMS License Agreement for the other party's material breach, subject to a specified notice and cure period. BMS may terminate the BMS License Agreement if the Company fails to meet its diligence obligations under the BMS License Agreement, for the Company's insolvency, or if the Company or its affiliates challenges the validity, scope, enforceability, or patentability of any of the licensed patents. The Company may terminate the BMS License Agreement for any reason upon prior written notice to BMS, with a longer notice period if a licensed product has received regulatory approval. If the BMS Agreement is terminated for the Company's material breach, BMS will regain rights to bempikibart and the Company must grant BMS an exclusive license under the Company's patent rights covering bempikibart, subject to a low single digit percentage royalty on net sales of bempikibart payable to the Company by BMS.

During the year ended December 31, 2019, the Company recorded in-process-research and development expense of $14.6 million in the statement of operations related to the BMS License Agreement comprised of $8.0 million of cash consideration and $6.6 million of Series A preferred shares issued to BMS.

As of December 31, 2022, no events have occurred that would require payment of the milestones, royalties or sublicense fees.

Legal Proceedings

The Company is not currently party to any material legal proceedings. At each reporting date, the Company evaluates whether or not a potential loss amount or a potential range of loss is probable and reasonably estimable under the provisions of FASB ASC Topic 450, *Contingencies*. The Company expenses as incurred the costs related to its legal proceedings.

Indemnification Arrangements

As permitted under Delaware law, the Company has agreements whereby it indemnifies certain of its investors, stockholders, employees, officers, and directors (collectively, the Indemnified Parties) for certain events or occurrences while the Indemnified Parties are, or were serving, at its request in such capacity. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited; however, the Company has an Executive Liability insurance policy that limits its exposure and enables it to recover a portion of any future amounts paid up to $5.0 million. The Company believes the estimated fair value of these indemnification agreements is minimal. The Company enters into standard indemnification agreements in the ordinary course of business. Pursuant to these agreements, the Company indemnifies, holds harmless, and agrees to reimburse the Indemnified Parties for losses suffered or incurred by the Indemnified Parties, generally the Company's business partners or customers, in connection with any U.S. patent or any copyright or other intellectual property infringement claim by any third party with respect to the Company's products. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification agreements.

8. Debt

Venture Debt

On December 11, 2020, the Company entered into a Loan and Security Agreement with Silicon Valley Bank, a California corporation (Loan Agreement) for a lending facility of up to $25 million. The Company received $5.0 million upon execution of the Agreement (2020 Term A Loan Advance) and had the ability to draw up to $20.0 million in three separate term loan advances if certain performance milestones are met. The term loan bears interest at an annual rate equal to the greater of the prime rate or 3.25%. The Loan Agreement provides for interest-only payments until April 30, 2022, and repayment of the aggregate outstanding principal balance of the term loan in monthly installments starting on July 1, 2022 through December 1, 2023. The commencement of principal payments and the maturity date will be deferred by one year upon the occurrence of a contingent event. In addition, the Company paid a fee of $91 thousand upon closing and is required to pay a fee of 2.0% of the aggregate amount of advances under the Loan Agreement at maturity. At its option, the Company may elect to prepay all or a portion of the outstanding advances by paying the principal balance, and all accrued and unpaid interest, and a prepayment premium. In connection with the Loan Agreement, the Company granted the lender a security interest in all of its personal property now owned or hereafter acquired, excluding intellectual property (but including the rights to payment and proceeds from the sale, licensing or disposition of intellectual property), and a negative pledge on intellectual property. The Loan Agreement also contains certain events of default, representations, warranties and non-financial covenants of the Company. If the Company fails to make payments when due or breaches any operational covenant or has any event of default, this could have a material adverse effect on its business and financial condition. The Company was in compliance with all covenants at December 31, 2022.

On June 30, 2022, a second amendment to the Loan Agreement was entered into with the lender that extended the interest-only payment until December 31, 2022 followed by 24 equal monthly payments of principal plus interest. The loan matures on December 31, 2024. The amendment increases the final payment from 2.0% to 4.0% of the advanced payment and modifies the prepayment premium.

On August 10, 2022, a third amendment to the Loan Agreement was entered into with the lender. Per the terms of the amendment and in conjunction with the Collaboration Agreement (as defined below), the Company transferred $5.0 million into a restricted cash collateral money market account which is included as Restricted cash and restricted cash equivalents on the balance sheet. This restricted cash equivalent covers the amount of the debt outstanding as of the third amendment effective date.

On December 21, 2022, a fourth amendment to the Loan Agreement was entered into with the lender that extended the interest-only payment until July 1, 2023 followed by 18 equal monthly payments of principal plus interest. The loan matures on December 1, 2024.

On April 26, 2023, a fifth amendment to the Loan Agreement was entered into with the lender. The amendment provides that the Company must maintain at least 50% of its consolidated cash with the lender. In addition, the Company shall at all times have on deposit in operating and depository accounts maintained with the lender, unrestricted and unencumbered cash in an amount equal to the lesser of (i) 100% of the dollar value of the Company's consolidated cash and (ii) 110% of the then-outstanding obligations of the Company to the bank. So long as, the Company is in compliance with those terms, the Company shall be permitted to maintain accounts with other banks or financial institutions.

On July 12, 2023, a sixth amendment to the Loan Agreement was entered into with the lender. The amendment provides for one term loan advance (the 2023 Term A loan advance) in an original principal amount of $5.5 million and required the Company to repay the outstanding 2020 Term A Loan Advance of $5.0 million, including the final payment of $0.2 million. Upon the occurrence of a contingent event, the lender shall make up to three additional term loan advances at the Company's request in original principal amounts of $7.0 million, $7.5 million and $5.0 million. The amounts must be drawn by the Company before March 31, 2024, March 31, 2025 and July 1, 2025, respectively. The interest-only period extends through June 30, 2024 followed by 36 equal monthly payments of principal plus interest. The term loan bears interest at an annual rate equal to the greater of the prime rate minus 0.25% or 8.00%. Pursuant to this amendment, specifically the interest-only period through June 30, 2024, the Company classified the principal of its venture debt as noncurrent on the consolidated balance sheet as of December 31, 2022.

In conjunction with the Loan Agreement, the Company issued warrants to purchase 166,371 shares of common stock to the lender at a per share price of $0.33 with a maximum contractual term of 10 years. The warrants had a total relative fair value of $39 thousand upon issuance and were recorded as a debt discount.

In conjunction with the sixth amendment, the Company issued warrants to purchase 211,528 shares of common stock to the lender at a per share price of $0.36 with a maximum contractual term of 10 years. The warrants are issued in two separate tranches of 105,764 based upon certain milestone events. The warrants had a de minimis total relative fair value at the time of issuance.

Pursuant to ASC Topic 480, *Distinguishing Liabilities from Equity* and ASC Topic 815, *Derivatives and Hedging*, the Warrants were classified as equity and were initially measured at fair value. Subsequent changes to fair value will not be recognized so long as the instrument continues to be equity classified.

Interest expense was $327 thousand and $263 thousand for the years ended December 31, 2022 and 2021, respectively. The effective rate on the Loan Agreement, including the amortization of the debt discount and

issuance costs was 9.49% and 5.23% at December 31, 2022 and 2021, respectively. The components of the long-term debt balance are as follows (in thousands):

	December 31,	
	2022	2021
Principal amount of term loans	**$5,000**	$5,000
Unamortized debt discount and issuance costs	**72**	(28)
Carrying amount	**5,072**	4,972
Less current portion	—	—
Long-term debt, net	**$5,072**	$4,972

Convertible Notes

On May 20, 2022, the Company entered into an agreement with the existing investors of the Company to purchase up to an aggregate of $30.0 million in convertible notes (the Convertible Notes). The Convertible Notes bear interest at 5.0% per annum. The Convertible Notes become due on demand of the Convertible Noteholders one year from the date of issuance. On May 20, August 5 and December 23, 2022, the Company received $8.3 million, $5.0 million, and $16.7 million, respectively, in exchange for issuance of the Convertible Notes. Interest expense was $376 thousand for the year ended December 31, 2022.

The Convertible Notes contain mandatory conversion features whereby the total outstanding amount of principal and accrued and unpaid interest of the Convertible Notes shall automatically convert into shares of common stock upon certain qualified financings. The total outstanding amount of principal and accrued and unpaid interest of the Convertible Notes convert into common shares at 90% of the purchase price of the mandatory conversion events. If the mandatory conversion events do not occur the holders of the Convertible Notes may request the Convertible Notes plus accrued interest be converted into Series B preferred stock at the Series B convertible price of $1.0971.

The Company has elected to account for the Convertible Notes at fair value. The Company recorded a $2.4 million loss related to the change in the fair value of the Convertible Notes for the year ended December 31, 2022.

9. Convertible Preferred Stock

In July 2018, the Company entered into a Series A and A-1 Preferred Stock Purchase Agreement and issued 10,000,000 shares of Series A Preferred Stock at a price of $1.00 per share less issuance costs of $100 thousand for total net proceeds of $9.9 million. The Company also issued 6,500,000 shares of Series A1 preferred stock for the conversion of financial instruments that had been previously issued during the years ended December 31, 2018 and 2017.

In connection with the initial issuance of the Series A preferred stock, the holders received the right to purchase, and the Company the obligation to sell, an additional 31,000,000 shares of Series A preferred stock at the same purchase price as the initial closing upon achieving certain milestones. The specified milestones could be waived upon written consent of the holders of a majority of the shares of Series A preferred stock. The Company determined that the tranche rights did not meet the definition of a freestanding financial instrument because they are not legally detachable. Further, the Company determined that the tranche rights do not meet the definition of an embedded derivative that require bifurcation from the equity instrument.

In August 2019, the Company issued 3,000,000 shares of Series A preferred stock at a price of $1.00 per share less issuance costs of $30 thousand for net proceeds of $2.97 million upon the achievement of specified milestones. In September 2019, the Company issued 28,000,000 shares of Series A preferred stock at a price of $1.00 per share less issuance costs of $40 thousand for net proceeds of $27.96 million upon the receipt of a waiver of the final milestones being met.

In September 2019, the Company issued 6,628,788 Series A preferred shares in association with the purchase of a license agreement with BMS as further described in Note 7.

On August 31, 2020, the Company entered into a Series B Preferred Stock Purchase Agreement and issued 34,636,767 shares of Series B Preferred Stock at a price of $1.0971 per share less issuance costs of $100 thousand for total net proceeds of $37.9 million.

In connection with the initial issuance of the Series B preferred stock, the holders received the right to purchase, and the Company the obligation to sell, an additional 17,318,383 shares of Series B preferred stock at the same purchase price as the initial closing upon achieving certain milestones. The specified milestones could be waived upon written consent of the holders of a majority of the shares of Series B preferred stock. The Company also had the right to issue additional shares of Series B Preferred Stock to new investors if the agreement was reached before December 31, 2020, a portion of which would be issued immediately and a portion upon achieving the specified milestones. The Company determined that the tranche rights did not meet the definition of a freestanding financial instrument because they are not legally detachable. Further, the Company determined that the tranche rights do not meet the definition of an embedded derivative that require bifurcation from the equity instrument.

On October 15, 2020, the Company issued an additional 1,822,987 shares of Series B Preferred Stock to new investors at a purchase price of $1.0971 per share for total net proceeds of $2.0 million.

In November and December of 2021, the Company issued 18,229,873 shares of Series B Preferred stock at a purchase price of $1.0971 per share less issuance cost of $10 thousand for total net proceeds of $ for $20.0 million upon the achievement of the specified milestones.

The Series A Preferred stock, the Series A-1 preferred stock and the Series B preferred stock, (together the Preferred Stock) have the following rights and preferences:

Voting Rights

The holders of the Preferred Stock are entitled to vote, together with the holders of common stock, on all matters submitted to stockholders for a vote. Each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of shares of common stock into which the shares of Preferred Stock held by such holder are convertible at the time of such vote. Except as provided by law or by the other provisions of the Company's Second Amended and Restated Certificate of Incorporation, holders of Preferred Stock vote together with the holders of common stock as a single class and on an as-converted to Common Stock basis.

The holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, are entitled to elect two directors of the Company (the Series B Preferred Directors); the holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, are entitled to elect three directors of the Company (the Series A Preferred Directors and together with the Series B Directors, the Preferred Directors).

Conversion

Each share of Preferred Stock is convertible, at the option of the holder, at any time, and without the payment of additional consideration, into such number of fully paid and non-assessable shares of common stock as is determined by dividing the Applicable Preferred Stock Original Issue Price (as defined below) by the Applicable Preferred Stock Conversion Price (as defined below) in effect at the time of conversion.

The Applicable Preferred Stock Original Issue Price is $1.00 per Series A share, $0.885 per Series A1 share and $1.0971 per Series B share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination, or other similar recapitalization with respect to the Preferred Stock. The Applicable Preferred Stock

Conversion Price is initially $1.00 for Series A, $0.885 for Series A1 and $1.0971 for Series B, subject to appropriate adjustment in the event of any stock dividend, stock split, combination, or other similar recapitalization and other adjustments, as set forth in the Company's Second Amended and Restated Certificate of Incorporation.

Each share of Preferred Stock will automatically convert into shares of common stock at the then effective conversion ratio (i) upon an initial public offering of the Company's common stock, provided that such offering results in at least $50 million of gross proceeds, after deducting the underwriting discount and commissions, to the Company or (ii) upon the vote or written consent of the holders of a majority of the outstanding shares of Preferred Stock.

Dividends

The Company may not declare, pay or set aside any dividends on any other class or series of stock of the Company, other than dividends on common stock payable in common stock, unless the holders of the Preferred Stock first receive, or simultaneously receive, a dividend on each outstanding Preferred Stock of an amount equal to six percent (6%) of the applicable preferred stock original issue price (as defined below) per share of such series of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such series of Preferred Stock). Dividends are non-cumulative. No cash dividends were declared or paid during the years ended December 31, 2022 or 2021.

Liquidation Preference

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or Deemed Liquidation Event (as defined below), the holders of shares of Preferred Stock then outstanding shall be entitled, on a pari passu basis, to be paid out of the assets of the Company available for distribution to its stockholders before any payment will be made to the holders of common stock by reason of their ownership thereof, an amount per share equal to with respect to the Series A, A1 and B preferred stock, one times the original issue price, plus any dividends declared but unpaid. If upon any such liquidation, dissolution or winding up of the Company or Deemed Liquidation Event, the assets of the Company available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled, the holders of the shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

After the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Company available for distribution to its stockholders will be distributed among the holders of the shares of Series A, A1 and B preferred stock, and common stock, pro rata based on the number of shares held by each such holder, treating for the purpose all such securities as if they had been converted to common stock. Unless the holders of a majority of the Preferred Stock, voting together as a single class, elect otherwise, a Deemed Liquidation Event shall include (i) a merger or consolidation (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation) or (ii) a sale, lease, transfer, exclusive license, or other disposition of substantially all of the assets of the Company.

Redemption

The Preferred Stock is not redeemable at the option of the holders thereof. However, the Preferred Stock is redeemable upon the occurrence of certain contingent events, unless otherwise determined by the holders.

As it relates to the payment upon the occurrence of a contingent event, the Company evaluated the Preferred Stock in accordance with the guidance in FASB ASC Topic 480, *Distinguishing Liabilities from Equity*, and

determined that the payment upon the occurrence of a contingent event is not solely within its control and accordingly classified the Preferred Stock in temporary equity. The Preferred Stock is not currently redeemable, nor is it currently probable that the instruments will become redeemable, and therefore the instruments are not accreted to redemption value.

10. Common Stock

As of December 31, 2022 the Company's Second Amended and Restated Certificate of Incorporation authorized the Company to issue 141,900,000 shares of common stock, $0.0001 par value per share, respectively. The voting, dividend and liquidation rights of the holders of the Company's common stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth above. Each share of common stock entitles the holder to one vote, together with the holders of the Preferred Stock, on all matters submitted to the stockholders for a vote. On May 20, 2022 and December 8, 2022, the Company amended and restated the Certificate of Incorporation to increase the authorized common stock by 5,000,000 and 6,900,000, respectively to 141,900,000.

Common stockholders are entitled to receive dividends, as may be declared by the Company's board of directors, if any, subject to the preferential dividend rights of the Preferred Stock. No dividends have been declared or paid during the years ended December 31, 2022 and 2021.

The Company has reserved the following shares of common stock for future issuance:

	As of December 31,	
	2022	2021
Shares reserved upon the conversion of authorized Series A preferred stock	**47,628,788**	47,628,788
Shares reserved upon the conversion of authorized Series A1 preferred stock	**6,500,000**	6,500,000
Shares reserved upon the conversion of authorized Series B preferred stock	**54,689,627**	54,689,627
Shares reserved for future issuance under the 2017 Stock Incentive Plan	**1,669,058**	691,090
Shares reserved for stock option exercises	**22,997,639**	16,877,957
Shares reserved for warrants	**166,371**	166,371
	133,651,483	126,553,833

11. Stock-Based Compensation

Grants under the 2017 Plan

The Company adopted the 2017 Stock Option and Grant Plan and subsequent amendments (the Plan) with 25,956,535 shares of common stock reserved for issuance to employees, directors, and consultants. The Plan allows for the grant of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock unit awards and other stock awards. Recipients of stock options are eligible to purchase shares of the Company's common stock at an exercise price equal to the estimated fair market value of such stock on the date of grant. The maximum contractual term of options granted under the Plan is ten years, and the awards vest under such terms prescribed by the Company's board of directors.

Since inception, the Company has granted restricted stock awards, non-qualified stock options and incentive stock options. As of December 31, 2022, 1,669,058 shares remain available for future grant under the Plan.

Restricted Stock

For the restricted stock awards, the purchase price equaled the estimated fair value of the common stock as determined by the board of directors on the date of grant. The Company has the right, but not the obligation to repurchase unvested shares at the original purchase price if employees or non-employees are terminated or cease their employment or service relationship with the Company. The vesting period is generally contingent upon continued employment or consulting services being provided to the Company. The shares typically vest over a two-year or four-year period. The unvested shares of restricted stock are not considered outstanding shares for accounting purposes until the shares vest.

The following table summarizes restricted stock activity:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2021	3,232	$ 0.0001
Vested	(3,232)	0.0001
Unvested as of December 31, 2022	—	$ —

The aggregate fair value of restricted stock awards that vested during the years ended December 31, 2022 was zero. No restricted stock awards were issued during the years ended December 31, 2022 and 2021. As of December 31, 2022, no shares remained subject to a repurchase right by the Company.

As of December 31, 2022, there was no unrecognized compensation cost related to the unvested restricted stock awards.

Stock Options

Stock options granted by the Company typically vest over a four-year period and have a ten-year contractual term. The following table summarizes the Company's stock option activity under the 2017 Plan during the year ended December 31, 2022:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (In Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2021	16,877,957	$ 0.32	8.85	$ 438
Granted	9,352,722	0.36	—	
Exercised	(307,859)	0.22	—	
Cancelled	(2,925,181)	0.34	—	
Outstanding at December 31, 2022	22,997,639	$ 0.34	7.94	$ 362
Exercisable at December 31, 2022	8,635,922	$ 0.31	5.81	$ 315

The weighted-average grant date fair value per share of options granted in the period ended December 31, 2022 was $0.26. The total fair value of options vested during 2022 was $1.2 million. As of December 31, 2022, total unrecognized compensation costs to the unvested stock options was approximately $3.5 million, which is expected to be recognized over a weighted-average period of 3.1 years.

Stock-Based Compensation Expense

For purposes of calculating stock-based compensation, the Company estimates the fair value of stock options using the Black-Scholes option-pricing model. This model incorporates various assumptions, including the expected volatility, expected term, and interest rates.

The underlying assumptions used to value stock options granted using the Black-Scholes option-pricing model during the year ended December 31, 2022 were as follows:

	Year Ended December 31,	
	2022	2021
Risk-free interest rate range	1.74% – 3.90%	0.60% – 1.27%
Expected dividend rate	—	—
Expected term (years) range	5.94 – 6.11	5.94 – 6.11
Expected stock price volatility range	85.9% – 88.9%	83.9% – 86.4%

Risk-Free Interest Rate – The risk-free rate assumption is based on the U.S. Treasury instruments, the terms of which were consistent with the expected term of the Company's stock options.

Expected Dividend – The expected dividend assumption is based on the Company's history and expectation of dividend payouts. The Company has not paid and does not intend to pay dividends.

Expected Term – The expected term of stock options represents the weighted average period the stock options are expected to be outstanding. The Company uses the simplified method for estimating the expected term, which calculates the expected term as the average time-to-vesting and the contractual life of the options for stock options issued to employees. The expected term for options granted to non-employees is based on the contractual life of the options.

Expected Volatility – Due to the Company's limited operating history and lack of company-specific historical or implied volatility, the expected volatility assumption was determined by examining the historical volatilities of a group of industry peers whose share prices are publicly available. The Company expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price.

Fair Value of Common Stock – As there has been no public market for the Company's common stock to date, the estimated fair value of its common stock has been determined by the Company using estimates and assumptions on the respective grant dates of the awards. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of preferred securities, the superior likelihood of, achieving a liquidity event, such as an IPO or sale. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date.

Stock-Based Compensation Expense

The Company recorded stock-based compensation expense in the following expense categories of its statements of operations (in thousands):

	Year Ended December 31,	
	2022	2021
Research and development	**$ 447**	$ 369
General and administrative	**791**	384
Total stock-based compensation expense	**$ 1,238**	$ 753

12. Agreements with Horizon

The Company entered into a Collaboration and Option Agreement (the Horizon Collaboration Agreement) and an Asset Purchase Agreement (the Purchase Agreement, collectively with the Horizon Collaboration Agreement, the Horizon Agreements) with Horizon Therapeutics Ireland DAC (Horizon) on August 12, 2022. Prior to the execution of the Horizon Agreements, the Company had completed a Phase 1 study for bempikibart (formerly ADX-914, a fully humanized, high affinity anti-inerleukin-7 receptor antagonist antibody) and was preparing to initiate two separate Phase 2 clinical trials. Under the terms of the Horizon Agreements, the Company is required to complete the two planned Phase 2 clinical trials as well as certain other development work agreed to by the parties. Horizon has the option to purchase bempikibart at any time up until the option termination date, which would have been shortly after the receipt of a data package from the second Phase 2 clinical trial. If Horizon elects to exercise the option to acquire bempikibart, Horizon would have received all tangible and non-tangible assets related to bempikibart, including the assignment of the license the Company obtained from BMS (see Note 7) when it initially acquired the technology, and would have assumed liabilities associated with bempikibart, including payment obligations under the BMS license.

Per the terms of the Horizon Collaboration Agreement, the Company received a total of $55.0 million for initiation of certain development activities associated with the planned clinical trials and related activities. If Horizon had exercised its option, the Company would have receive a prespecified fee, subject to certain adjustments, pursuant to the Purchase Agreement. The Company was also entitled to receive additional payment from Horizon based on the achievement of future development and regulatory milestones as well as royalty payments on annual net sales.

Accounting analysis

The Company concluded the arrangement was partially within the scope of Topic 606. Specifically, the Company concluded that the research services required to be performed as part of the Horizon Collaboration Arrangement represented an output of the Company's ordinary activities, and this represents a contract with a customer. The Company concluded that the potential sale of bempikibart was not an output of the Company's ordinary activities and therefore this component of the Agreements is considered to be a sale of an asset and not accounted for under Topic 606. At the commencement of the collaboration arrangement with Horizon, the Company identified two performance obligations related to the development activities of bempikibart, one of each of the specified clinical trials, with each composing the services related to the clinical trial and other related development activities. The Company also identified a material right related to the option for Horizon to purchase bempikibart. The material right was considered a separate performance obligation pursuant to the provisions of Topic 606. The Company determined the transaction price to be $55.0 million which it allocated to the three performance obligations based on the estimated stand-alone selling price of each performance obligation.

The following table summarizes the allocation of the transaction price allocated to each performance obligation (in thousands):

	Transaction Price
AD phase 2 research services	$ 25,417
AA phase 2 research services	18,265
Material right for the purchase of ADX-914	11,318
Total	$ 55,000

The Company concluded that the consideration allocated to the research service performance obligations should be recognized over time as Horizon received the benefit of the research activities as the activities were performed. The Company has determined that this method was most appropriate as progress towards completion of research is largely driven by time and effort spent and costs incurred to perform this research. There are

significant judgments and estimates inherent in the determination of the costs to be incurred for the research and development activities related to the collaboration with Horizon. These estimates and assumptions include a number of objective and subjective factors, including the potential third-party costs related to each of the Phase 2 clinical trials. Any changes to these estimates will be recognized in the period in which they change as a cumulative catch-up. As of December 31, 2022, the amounts of the allocated transaction price that are unsatisfied or partially satisfied for AD and AA phase 2 research services were $20.5 million and $16.5 million, respectively. The consideration allocated to the material right would have been included in the consideration associated with the sale of bempikibart when and if the option had been exercised by Horizon or would have been recognized upon expiration of the option.

As of December 31, 2022, the Company had received $32.5 million of the $55.0 million transaction price from Horizon. The Company recognized $6.7 million of collaboration agreement revenue for the year ended December 31, 2022. As of December 31, 2022, approximately $25.8 million remains in collaboration deferred revenue, of which $14.5 million is included in deferred revenue, current portion and $11.3 million is included in deferred revenue, net of current portion on the consolidated balance sheets, based on anticipating timing of recognition of the amounts.

13. Related Party Transactions

The Company has consulting and advisory agreements with certain investors and board members which are considered to be related party transactions. For the years ended December 31, 2022 and 2021, the Company recorded expense of $87 thousand and $60 thousand, respectively, related to services provided by these investors.

No amounts were due to related parties at December 31, 2022 or 2021.

14. Defined Contribution Plan

The Company has a defined contribution savings plan under Section 401(k) of the Internal Revenue Code (the 401(k) Plan). The 401(k) Plan covers all employees who meet defined minimum age and service requirements and allows participants the option to elect to defer a portion of their annual compensation on a pretax basis, as well as Roth post tax deferrals. As currently designed, the Company is not required to make and has not made any contributions to the 401(k) Plan.

15. Income Taxes

For the years ended December 31, 2022 and 2021, the Company recorded current and deferred income tax expense of $62 thousand and $0.6 million, respectively. The Company's effective tax rate of 0.0% differs from the U.S. statutory tax rate of 21.0% primarily as a result of the valuation allowance maintained against the Company's net deferred tax assets.

For financial reporting purposes, loss from operations before income taxes includes the following components (in thousands):

	Year Ended December 31,	
	2022	**2021**
Pretax loss:		
United States	**$(42,722)**	$(36,877)
Foreign	**(25)**	(40)
Loss before income taxes	**$(42,747)**	$(36,917)

The components of our provision for income taxes during the two years ended December 31, 2022, consisted of the following (in thousands):

	Year Ended December 31,	
	2022	2021
Current:		
Federal	$—	$—
State	—	—
Foreign	62	547
Total current	62	547
Deferred:		
Federal	$—	$—
State	—	—
Foreign	—	—
Total deferred	—	—
Total income tax provision	$ 62	$547

A reconciliation of income tax expense (benefit) computed at the statutory federal income tax rate to income taxes as reflected in the financial statements is as follows:

	Year Ended December 31,	
	2022	2021
Federal income tax expense at statutory rate	21.0%	21.0%
State income taxes, net of federal benefit	6.9	6.9
Permanent differences	(0.4)	(1.1)
Foreign rate differential	0.0	(0.2)
Research and development tax credits	4.1	4.0
Change in valuation allowance	(31.6)	(30.6)
Effective income tax rate	— %	— %

Deferred taxes are recognized for temporary differences between the basis of assets and liabilities for financial statement and income tax purposes. The significant components of the Company's deferred tax assets and liabilities consisted of the following (in thousands):

	2022	2021
Deferred tax assets:		
Federal net operating loss carryforwards	**$ 19,135**	$ 15,792
State net operating loss carryforwards	**5,401**	4,603
Foreign net operating loss carryforwards	**—**	—
Capitalized intangible assets	**3,089**	3,360
Tax credit carryforwards	**4,745**	2,536
Capitalized R&D expenditures	**7,378**	—
Lease liability	**1,962**	—
Stock compensation and other	**977**	554
Net deferred tax assets before valuation allowance	**42,687**	26,845
Deferred tax asset valuation allowance	**(40,342)**	(26,740)
Net deferred tax assets	**2,345**	105
Deferred tax liabilities:		
Fixed assets	**(483)**	(105)
Right of use asset	**(1,862)**	(105)
Net deferred tax assets	**$ —**	$ —

The Company had net deferred tax assets before valuation allowances of $42.7 million and $26.8 million as of December 31, 2022 and 2021, respectively, primarily attributable to net operating losses. The Company has provided a valuation allowance for the full amount of the net deferred tax assets as, based on all available evidence, it is considered more likely than not that all the recorded deferred tax assets will not be realized in a future period. The valuation allowance in 2022 increased due to the increase in the deferred tax assets by the same amount (primarily due to the increase in the net operating loss carryforwards).

As of December 31, 2022, the Company has $91.1 million of federal net operating loss carryforwards, of which $1.0 million will begin to expire in 2037 and $90.1 million can be carried forward indefinitely, and $85.5 million of state net operating loss carryforwards that expire at various dates beginning in 2037.

Subject to the limitations described below, as of December 31, 2022, the Company had federal and state research and development tax credit carryforwards of $3.6 million and $1.4 million, respectively available to reduce future tax liabilities which start to expire in 2038. The Company has generated federal and state research and development credits but has not conducted a study to document the qualified activity. This study may result in an adjustment to the Company's research and development credit carryforwards; however, until a study is completed, and any adjustment is known, no amounts are being presented as uncertain tax position. A full valuation allowance has been provided against the Company's research and development credits and, if an adjustment is required, this adjustment would be offset by an adjustment to the deferred tax asset established for the research and development credit carryforwards and the valuation allowance.

Realization of the future tax benefits is dependent on many factors, including the Company's ability to generate taxable income within the net operating loss carryforward period. Under the provisions of the Internal Revenue Code, the net operating loss and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service (IRS) and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50%, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes

that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. As a result of ownership changes in the Company from its inception through December 31, 2022, the Company's NOL and tax credit carryforwards allocable to the periods preceding each such ownership change could be subject to limitations under IRC Section 382, however the Company has not yet completed an IRC Section 382 study.

The Company files income tax returns in the United States, Australia and Massachusetts. The statute of limitations for assessment by the IRS and state tax authorities is closed prior to 2018, although carryforward attributes that were generated prior to tax year 2018 may still be adjusted upon examination by the IRS or state tax authorities if they either have been or will be used in a future period. The Company is currently not under examination by the IRS or any other jurisdictions for any tax years. The statute of limitations for assessment by the Australian Taxation Office is four years from the date of return filing. The Company is not currently under examination by the Australian Taxation Office for any tax years.

The Company's current intention is to permanently reinvest the total amount of its unremitted earnings in the local international jurisdiction. As such, the Company has not provided for taxes on the unremitted earnings of its international subsidiary. As of December 31, 2022, the Company's foreign subsidiary does not have any unremitted foreign earnings.

The Company establishes reserves for uncertain tax positions based on management's assessment of exposures associated with tax positions taken on tax return filings. The tax reserves are analyzed periodically, and adjustments are made as events occur to warrant adjustments to the reserve.

As of December 31, 2022, the Company had no gross unrecognized tax benefits. During 2022 the Company amended its prior year tax filings and settled the $1.4 million unrecognized tax benefit that was previously recognized in the December 31, 2021 reporting period. The company does not expect the unrecognized tax benefits to change significantly over the next 12 months. The company recognizes both interest and penalties associated with uncertain tax positions as a component of income tax expense. As of December 31, 2022, the Company has not accrued penalties and provisions for interest.

16. Net Loss per Share

Basic and diluted loss per share is computed by dividing net loss attributable to common stockholders by the weighted-average common shares outstanding.

The Company's potentially dilutive securities, which include convertible preferred stock, convertible notes, unvested restricted common stock, and stock options, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following from the computation of diluted net loss per share attributable to common stockholders because including them would have had an anti-dilutive effect:

	Year Ended December 31,	
	2022	2021
Series A convertible preferred stock	47,628,788	47,628,788
Series A-1 convertible preferred stock	6,500,000	6,500,000
Series B convertible preferred stock:	54,689,627	54,689,627
Unvested restricted common stock	—	3,232
Options to purchase common stock	22,997,639	16,877,957
Warrants to purchase common stock	166,371	166,371

In addition, during the year ended December 31, 2022, the Company issued convertible notes with a principal balance of $30.0 million. These convertible notes and any accrued interest may convert into either a variable number of common shares or into shares of Series B Preferred Stock based on a fixed exchange ratio. Any shares of Series B Preferred Stock issued to settle the convertible notes would then be convertible into shares of common stock.

17. Subsequent Events

The Company considers events or transactions that occur after the balance sheet date but prior to the date the financial statements are available to be issued for potential recognition or disclosure in the financial statements. The Company has completed an evaluation of all subsequent events after the audited balance sheet date of December 31, 2022 through December 15, 2023, the date the financial statements were issued, to ensure that these financial statements include appropriate disclosure of events both recognized in the financial statements as of December 31, 2022 and events which occurred subsequently but were not recognized in the financial statements.

Amendment to Loan Agreement

On April 26, 2023 and July 12, 2023, the Company executed a fifth and sixth amendments to the Loan Agreement. See Note 8 for details on the Loan Agreement and amendments.

On November 2, 2023, a seventh amendment to the Loan Agreement was entered into with the lender. The additional loan advance of $7.0 million, the first advance stated in the sixth amendment to the Loan Agreement, could be drawn down once the company received net proceeds of $75.0 million. The seventh amendment extends the time the Company has to receive the net proceeds to March 31, 2024 and provides that $37.5 million of the total $75 million requirement must be through the issuance and sale of equity securities.

Amendment to Convertible Notes

On April 27, 2023, the Company amended the maturity dates for the Convertible Notes. See Note 8 for details.

Rights to Bempikibart (formerly ADX-914)

As more fully discussed in Note 12 on August 12, 2022, the Company entered into the Horizon Agreements. Under the terms of the Horizon Agreements, the Company received an initial consideration and development funding under the bempikibart program totaling $55.0 million, which funded two ongoing Phase 2 trials for bempikibart. Horizon had an option to acquire the program at a prespecified price, subject to certain adjustments. In October 2023, Amgen Inc. (Amgen) completed its acquisition of Horizon Therapeutics public limited company (Horizon plc). Following the closing of Amgen's acquisition of Horizon plc, the Company agreed with Amgen to mutually terminate the Horizon Agreements and in November 2023, the Company and Horizon entered into a termination agreement (the Horizon Termination Agreement), pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, the Company retained all initial consideration and development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to bempikibart. In consideration for the Horizon Termination Agreement, the Company agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart.

Proposed Merger with Homology

On November 16, 2023, the Company entered into an Agreement and Plan of Merger and Reorganization (the Merger Agreement) with Homology and Kenobi Merger Sub, Inc., a wholly owned subsidiary of Homology (Merger Sub). Pursuant to the Merger Agreement and subject to the satisfaction or waiver of the conditions

therein, Merger Sub will merge with and into the Company, with the Company continuing as the surviving company and as a wholly owned subsidiary of Homology (the Merger). If the Merger is completed, the business of the Company will continue as the business of the combined company. The Merger is intended to qualify for federal income tax purposes as a tax-free reorganization under the provisions of Section 368(a) of the Internal Revenue Code of 1986, as amended.

The Merger is expected to close in the first quarter of 2024 and is subject to approval by the stockholders of the Company and Homology as well as other customary closing conditions, including the effectiveness of a registration statement filed with the SEC in connection with the transaction. If Homology is unable to satisfy certain closing conditions or if other mutual closing conditions are not satisfied, the Company will not be obligated to complete the Merger. The Merger Agreement contains certain termination rights of each of the Company and Homology. Under certain circumstances, the Company could be required to pay Homology a termination fee of $5.85 million. Homology could be required to pay the Company a termination fee of $2.4 million.

Subject to the terms and conditions of the Merger Agreement, at the effective time of the Merger (the Effective Time), each then outstanding share of the Company's common stock (including shares of common stock issued upon conversion of the Company's preferred stock, shares of the Company's common stock issued upon conversion of Q32's convertible notes and shares of the Company's common stock issued in the Q32 pre-closing financing defined below) will be converted into the right to receive a number of shares of Homology's common stock calculated in accordance with the Merger Agreement (the exchange ratio).

In connection with the Merger Agreement, certain third parties have entered into a subscription agreement with the Company to purchase shares of the Company's common stock for an aggregate purchase price of approximately $42.0 million (the Q32 Pre-Closing Financing). The Q32 Pre-Closing Financing is contingent on and will occur prior to the closing of the Merger, subject to customary closing conditions. Shares of the Company's common stock issued pursuant to the Q32 Pre-Closing Financing will be converted into shares of Homology common stock in accordance with the exchange ratio at the Effective Time.

Each share of Homology common stock that is issued and outstanding at the Effective Time will remain issued and outstanding and such shares, subject to the Reverse Stock Split, will be unaffected by the Merger.

At the Effective Time, each person who as of immediately prior to the Effective Time was a stockholder of record of Homology or had the right to receive Homology's common stock will be entitled to receive a contractual contingent value right (CVR) issued by Homology subject to and in accordance with the terms and conditions of a Contingent Value Rights Agreement between Homology and the rights agent (the "CVR Agreement"), representing the contractual right to receive cash payments from the combined company upon the receipt of certain proceeds from a disposition of Homology's pre-merger assets, calculated in accordance with the CVR Agreement.

Although the Company intends to consummate the merger, there is no assurance that it will be successful.

Amendment to Certificate of Incorporation

On November 16, 2023, the Company amended its Second Amended and Restated Certificate of Incorporation to increase the number of its authorized common stock by 83,100,000 shares from 141,900,000 shares to 225,000,000 shares.

Stock Option Grants

In November 2023, the Company granted under the 2017 Stock Option Plan, 1,123,354, stock options to five individuals, which included new employees, executives and one consultant. Stock options were issued with an exercise price of $0.82 per share. The stock option awards vest in accordance with terms typically granted under the 2017 Stock Option Plan.

Q32 BIO INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(amounts in thousands, except share and per share data)
(Unaudited)

	September 30, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	**$ 36,256**	$ 43,893
Prepaid expenses and other current assets	**2,845**	2,960
Total current assets	**39,101**	46,853
Property and equipment, net	**1,906**	2,276
Right-of-use asset, operating leases	**6,438**	6,890
Restricted cash and restricted cash equivalents	**5,647**	5,647
Other non-current assets	**677**	108
Total assets	**$ 53,769**	$ 61,774
Liabilities, convertible preferred stock and stockholders' deficit		
Current liabilities:		
Accounts payable	**$ 1,829**	$ 1,435
Accrued expenses and other current liabilities	**7,399**	9,497
Convertible notes	**37,394**	32,402
Venture debt	**418**	—
Deferred Revenue, current portion	**24,798**	14,531
Total current liabilities	**71,838**	57,865
Deferred revenue, net of current portion	**15,540**	11,318
Lease liability, net of current portion	**6,386**	6,786
Venture debt, net of current portion	**5,011**	5,072
Total liabilities	**98,775**	81,041
Commitments and contingencies (Note 7)		
Series A convertible preferred stock, $0.0001 par value, 47,628,788 shares authorized, issued and outstanding at September 30, 2023 and December 31, 2022 (liquidation preference of $47,629 at September 30, 2023)	**47,458**	47,458
Series A-1 convertible preferred stock, $0.0001 par value, 6,500,000 shares authorized, issued and outstanding at September 30, 2023 and December 31, 2022 (liquidation preference of $5,753 as of September 30, 2023)	**4,132**	4,132
Series B convertible preferred stock, $0.0001 par value, 54,689,627 shares authorized, issued and outstanding at September 30, 2023 and December 31, 2022 (liquidation preference of $60,000 as of September 30, 2023)	**59,855**	59,855
Total convertible preferred stock	**111,445**	111,445
Stockholders' deficit:		
Common stock, $0.0001 par value; 141,900,000 and 141,900,000 shares authorized, 7,258,304 and 7,139,216 shares issued and outstanding at September 30, 2023 and December 31, 2022, respectively	**1**	1
Additional paid-in capital	**3,562**	2,625
Accumulated deficit	**(160,014)**	(133,338)
Total stockholders' deficit	**(156,451)**	(130,712)
Total liabilities, convertible preferred stock and stockholders' deficit	**$ 53,769**	$ 61,774

The accompanying notes are an integral part of these condensed consolidated financial statements.

Q32 BIO INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(amounts in thousands, except share and per share data)
(Unaudited)

	Nine Months Ended September 30,	
	2023	**2022**
Collaboration arrangement revenue	**$ 8,011**	$ 2,871
Operating expenses:		
Research and development	**23,390**	26,624
General and administrative	**7,067**	7,561
Total operating expenses	**30,457**	34,185
Loss from operations	**(22,446)**	(31,314)
Change in fair value of convertible notes	**(4,992)**	(997)
Other income (expense), net	**827**	(765)
Total other income (expense), net	**(4,165)**	(1,762)
Loss before provision for income taxes	**(26,611)**	(33,076)
Provision for income taxes	**(65)**	(45)
Net loss and comprehensive loss	**$ (26,676)**	$ (33,121)
Net loss attributable to common stockholders—basic and diluted	**$ (26,676)**	$ (33,121)
Weighted-average common shares—basic and diluted	**7,217,158**	6,987,071
Net loss per share attributable to common stockholders—basic and diluted	**$ (3.70)**	$ (4.74)

The accompanying notes are an integral part of these condensed consolidated financial statements.

Q32 BIO INC.
CONDENSED CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(amounts in thousands, except share data)
(Unaudited)

	Series A Convertible Preferred Stock		Series A-1 Convertible Preferred Stock		Series B Convertible Preferred Stock		Common Stock		Additional Paid in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2021	47,628,788	$47,458	6,500,000	$4,132	54,689,627	$59,855	6,828,125	$ 1	$ 1,318	$ (90,529)	$ (89,210)
Exercise of stock options	—	—	—	—	—	—	307,859	—	69	—	69
Vesting of restricted stock	—	—	—	—	—	—	3,232	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	—	920	—	920
Net loss	—	—	—	—	—	—	—	—	—	(33,121)	(33,121)
Balance as of September 30, 2022	47,628,788	47,458	6,500,000	4,132	54,689,627	59,855	7,139,216	1	2,307	(123,650)	(121,342)
Balance as of December 31, 2022	47,628,788	47,458	6,500,000	4,132	54,689,627	59,855	7,139,216	1	2,625	(133,338)	(130,712)
Exercise of stock options	—	—	—	—	—	—	**119,088**	**—**	**31**	**—**	**31**
Stock-based compensation expense	—	—	—	—	—	—	**—**	**—**	**906**	**—**	**906**
Net loss	—	—	—	—	—	—	**—**	**—**	**—**	**(26,676)**	**(26,676)**
Balance as of September 30, 2023	**47,628,788**	**$47,458**	**6,500,000**	**$4,132**	**54,689,627**	**$59,855**	**7,258,304**	**$ 1**	**$ 3,562**	**$ (160,014)**	**$ (156,451)**

The accompanying notes are an integral part of these condensed consolidated financial statements.

Q32 BIO INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(amounts in thousands)
(Unaudited)

	Nine Months Ended September 30,	
	2023	**2022**
Cash flows from operating activities:		
Net loss	**$(26,676)**	$(33,121)
Adjustments to reconcile net loss to net cash used in operating activities:		
Amortization of debt discount and issuance costs	**57**	75
Depreciation expense	**375**	242
Stock-based compensation expense	**906**	920
Non-cash lease expense	**405**	643
Changes in fair value of convertible notes	**4,992**	997
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	**162**	(1,625)
Other non-current assets	**(569)**	264
Accounts payable	**394**	(1,627)
Operating lease liability	**(350)**	(304)
Accrued expenses and other current liabilities	**(2,148)**	930
Deferred revenue	**14,489**	12,129
Net cash used in operating activities	**(7,963)**	(20,477)
Cash flows from investing activities:		
Purchases of property and equipment	**(5)**	(2,485)
Net cash used in investing activities	**(5)**	(2,485)
Cash flows from financing activities:		
Proceeds from issuance of convertible notes, net of issuance costs	**—**	13,333
Proceeds from borrowings under loan and security agreement, net	**5,500**	—
Payments on borrowings under loan and security agreement, net	**(5,200)**	—
Proceeds from exercise of common stock options	**31**	69
Net cash provided by financing activities	**331**	13,402
Net increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	**(7,637)**	(9,560)
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of period	**49,540**	32,894
Cash, cash equivalents, restricted cash and restricted cash equivalents at end of period	**$ 41,903**	$ 23,334
Supplemental disclosure of non-cash operating, investing and financing activities:		
Right-of-use asset obtained in exchange for new operating lease liability	**$ —**	$ 7,666

The accompanying notes are an integral part of these consolidated financial statements.

Q32 BIO INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Nature of the Business

Q32 Bio Inc. (Q32 or the Company) was formed on April 10, 2017 as Admirx, Inc. under the laws of the state of Delaware and is headquartered in Waltham, Massachusetts. On March 20, 2020, the Company changed its name to Q32 Bio Inc. The Company aims to bring safer, more efficacious therapeutics to patients suffering from a wide range of devastating autoimmune and inflammatory diseases, starting with those rooted in the complement system and interleukin-7 (IL-7) signaling pathways.

Since its inception, the Company's operations have been focused on organizing and staffing, business planning, raising capital, establishing the Company's intellectual property portfolio and performing research and development of its product candidates, programs and platform. The Company has primarily funded its operations with proceeds from the sale of convertible preferred stock, convertible notes, venture debt and a collaboration arrangement.

Risks and Uncertainties

The Company is subject to risks and uncertainties common to early-stage companies in the biotechnology industry, including but not limited to, risks associated with completing preclinical studies and clinical trials, obtaining regulatory approvals for product candidates, development by competitors of new biopharmaceutical products, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Programs currently under development will require significant additional research and development efforts, including preclinical and clinical testing and will need to obtain regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's product development efforts are successful, it is uncertain when, if ever, the Company will realize revenue from product sales.

Liquidity and Going Concern

As of September 30, 2023, the Company had cash and cash equivalents of $36.3 million and an accumulated deficit of $159.9 million. The Company had a net working capital deficiency of $32.7 million and $11.0 million, a net loss of $26.6 million and $42.8 million for the nine months ended September 30, 2023 and the year ended December 31, 2022, respectively. The Company has funded its net losses principally through the sale of preferred stock, convertible notes, debt, and proceeds from a collaboration arrangement. The Company expects to experience negative cash flows from operations, and net losses for the foreseeable future as it continues to invest significantly in research and development of its product candidates and platform.

All of the Company's products are in development. There can be no assurance that the Company's research and development will be successfully completed, that adequate protection for the Company's intellectual property will be obtained, that any products developed will obtain necessary government regulatory approval or that any approved products will be commercially viable. Even if the Company's product development efforts are successful, it is uncertain when, if ever, the Company will generate significant revenue from product sales. The Company operates in an environment of rapid change in technology and substantial competition. In addition, the Company is dependent upon the services of its employees and consultants.

The Company expects its existing cash and cash equivalents will not be sufficient to allow the Company to fund its operating expenses and capital expenditures requirements through at least the next twelve months from the issuance of these condensed consolidated financial statements.

As a result, the Company will need substantial additional funding to support its continued operations and growth strategy. Until such a time as the Company can generate significant revenue from product sales, if ever, the Company expects to finance its operations through the sale of equity, debt financings or other capital sources, including collaborations with other companies or other strategic transactions. The Company may be unable to raise additional funds or enter into such other agreements on terms acceptable to the Company, or at all. If the Company fails to raise capital or enter into such agreements, needed, the Company may have to significantly delay, scale back or discontinue the development and commercialization of one or more of its product candidates or delay its pursuit of potential in-licenses or acquisitions. The Company is seeking to complete a transaction with Homology Medicines, Inc. (Homology) as well as complete a concurrent private placement to raise additional capital. However, there can be no assurances that such transactions will be completed.

Based on its recurring losses from operations incurred since inception, the expectation of continuing operating losses for the foreseeable future, and the need to raise additional capital to finance its future operations, the Company has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that these consolidated financial statements are issued.

The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of these uncertainties described above. Accordingly, the consolidated financial statements have been prepared on a basis that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

Proposed Merger with Homology

On November 16, 2023, the Company entered into an Agreement and Plan of Merger (the Merger Agreement) with Homology, and Kenobi Merger Sub, Inc., a wholly owned subsidiary of Homology (Merger Sub). Pursuant to the Merger Agreement and subject to the satisfaction or waiver of the conditions therein, Merger Sub will merge with and into the Company, with the Company continuing as the surviving company and as a wholly owned subsidiary of Homology (the Merger). If the Merger is completed, the business of the Company will continue as the business of the combined company. The Merger is intended to qualify for federal income tax purposes as a tax-free reorganization under the provisions of Section 368(a) of the Internal Revenue Code of 1986, as amended.

The Merger is expected to close in the first quarter of 2024 and is subject to approval by the stockholders of the Company and Homology as well as other customary closing conditions, including the effectiveness of a registration statement filed with the SEC in connection with the transaction. If Homology is unable to satisfy certain closing conditions or if other mutual closing conditions are not satisfied, the Company will not be obligated to complete the Merger. The Merger Agreement contains certain termination rights of each of the Company and Homology. Under certain circumstances, the Company could be required to pay Homology a termination fee of $5.85 million. Homology could be required to pay the Company a termination fee of $2.4 million.

Subject to the terms and conditions of the Merger Agreement, at the effective time of the Merger (the Effective Time), each then outstanding share of the Company’s common stock (including shares of common stock issued upon conversion of the Company’s preferred stock, shares of Q32’s common stock issued upon conversion of Q32’s convertible notes and shares of the Company’s common stock issued in the Q32 pre-closing financing defined below) will be converted into the right to receive a number of shares of Homology’s common stock calculated in accordance with the Merger Agreement (the “exchange ratio”).

In connection with the Merger Agreement, certain third parties have entered into a subscription agreement with the Company to purchase shares of the Company’s common stock for an aggregate purchase price of approximately $42.0 million (the Q32 Pre-Closing Financing). The Q32 Pre-Closing Financing is contingent on and will occur prior to the closing of the Merger, subject to customary closing conditions. Shares of the Company’s common stock issued pursuant to the Q32 pre-closing financing will be converted into shares of Homology common stock in accordance with the exchange ratio at the Effective Time.

Each share of Homology common stock that is issued and outstanding at the Effective Time will remain issued and outstanding and such shares, subject to the Reverse Stock Split, will be unaffected by the Merger

At the Effective Time, each person who as of immediately prior to the Effective Time was a stockholder of record of Homology or had the right to receive Homology's common stock will be entitled to receive a contractual contingent value right (CVR) issued by Homology subject to and in accordance with the terms and conditions of a Contingent Value Rights Agreement between Homology and the rights agent (the CVR Agreement), representing the contractual right to receive cash payments from the combined company upon the receipt of certain proceeds from a disposition of Homology's pre-merger assets, calculated in accordance with the CVR Agreement.

Although the Company intends to consummate the Merger, there is no assurance that it will be successful.

2. Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (GAAP). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Update (ASU) of the Financial Accounting Standards Board (FASB).

Principles of Consolidation

The accompanying consolidated financial statements include those of the Company and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Unaudited Interim Condensed Consolidated Financial Information

The accompanying condensed consolidated financial statements as of September 30, 2023 and for the nine months ended September 30, 2023 and 2022 are unaudited. The financial data and other information contained in the notes hereto as of September 30, 2023 and for the nine months ended September 30, 2023 and 2022 are also unaudited. The condensed consolidated balance sheet data as of December 31, 2022 was derived from the Company's audited consolidated financial statements included.

The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited annual consolidated financial statements, and in the opinion of management, reflect all adjustments, which include only normal recurring adjustments necessary for the fair presentation of the Company's financial position as of September 30, 2023 and the results of its operations and cash flows for the nine months ended September 30, 2023 and 2022. These unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements as of and for the year ended December 31, 2022, and the notes thereto.

The results for the nine months ended September 30, 2023 are not necessarily indicative of results to be expected for the year ended December 31, 2023, or any other interim periods, or any future year or period.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts in the financial statements and accompanying notes. Actual results could materially differ from those estimates. Management considers many factors in selecting appropriate financial accounting policies and controls, and in developing the estimates and assumptions that are used in the

preparation of these consolidated financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes and management must select an amount that falls within that range of reasonable estimates. Significant estimates and assumptions reflected in these condensed consolidated financial statements include, but are not limited to, the valuation of common stock awards, the valuation of convertible notes, the accruals of research and development expenses, the identification of material rights and estimation of standalone selling price for the identified performance obligations in the collaboration agreement and the inputs and assumptions to the over-time recognition of revenue under the collaboration agreement. Estimates are periodically reviewed considering changes in circumstances, facts and historical experience. Actual results may differ from the Company's estimates.

Concentrations of Credit Risk and Significant Suppliers

Financial instruments that potentially expose the Company to credit risk primarily consist of cash, cash equivalents, restricted cash and restricted cash equivalents. The Company maintains its cash, cash equivalents, restricted cash and restricted cash equivalents balances with accredited financial institutions and, consequently, the Company does not believe it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

The Company's cash management limits investment to investment-grade securities with the objective to preserve capital and to maintain liquidity until the funds can be used in business operations. The Company maintains its cash in bank deposit accounts that are Federal Deposit Insurance Corporation (FDIC) insured up to $250,000. At times, the Company's bank accounts may exceed the federal insurance limit.

The Company is dependent on contract development and manufacturing organizations (CDMOs) to supply products for research and development activities in its programs. In particular, the Company relies and expects to continue to rely on a small number of manufacturers to supply it with its requirements for the active pharmaceutical ingredients, other raw materials and formulated drugs related to these programs. These programs could be adversely affected by a significant interruption in the supply of active pharmaceutical ingredients, other raw materials and formulated drugs. The Company is also dependent on contract research organizations (CROs) which provide services related to the research and development activities in its programs.

Cash, Cash Equivalents, Restricted Cash and Restricted Cash Equivalents

The Company considers all highly liquid investments that are readily convertible into cash with maturities of three months or less at the date of purchase to be cash equivalents. Cash equivalents are comprised of money market accounts invested in U.S. Treasury securities.

Restricted cash and restricted cash equivalents are comprised of deposits held by financial institutions used to collateralize letters of credit related to the Company's lease arrangements and the Company's venture debt.

The company includes the restricted cash and restricted cash equivalents balance in cash and cash equivalents when reconciling beginning-of-period and end-of-period total amounts shown on the consolidated statements of cash flows.

Cash, cash equivalents, restricted cash and restricted cash equivalents consisted of the following (in thousands):

	September 30, 2023	December 31, 2022
Cash and cash equivalents	**$ 36,256**	$ 43,893
Restricted cash and cash equivalents	**5,647**	5,647
Total cash, cash equivalents, restricted cash and restricted cash equivalents	**$ 41,903**	$ 49,540

Deferred Transaction Costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred transaction costs until such financings are consummated. After consummation of an equity financing, these costs are recorded as a reduction of the proceeds from the transaction, either as a reduction of the carrying value of the preferred stock or in stockholders' deficit as a reduction of additional paid-in capital generated as a result of the transaction. Should the in-process equity financing be abandoned, the deferred transaction costs would be expensed immediately as a charge to operating expenses in the condensed consolidated statements of operations and comprehensive loss. During the nine months ended September 30, 2023, the Company has $0.6 million in deferred transactions costs related to the Merger.

Fair Value Measurements

Certain assets and liabilities are carried at fair value under GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the hierarchy, of which the first two are considered observable and the last is considered unobservable:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.

Level 3 – Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

The carrying values of the Company's cash, cash equivalents, restricted cash, restricted cash equivalents, prepaid expenses, and other current assets, accounts payable, and accrued expenses approximate their fair value due to their short-term nature. The carrying value of the Company's term loan as of September 30, 2023 (see Note 8) approximated fair value based on interest rates currently available to the Company. During the year 2023, the Company's convertible notes are carried at fair value determined in accordance with the fair value hierarchy (see Note 8).

Subsequent Event Considerations

The Company considers events or transactions that occur after the balance sheet date but prior to the issuance of the financial statements to provide additional evidence for certain estimates or to identify matters that require additional disclosure. Subsequent events have been evaluated as required.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326) – Measurement of Credit Losses on Financial Instruments,* which has been subsequently amended by ASU No. 2018-19, ASU No. 2019-04, ASU No. 2019-05, ASU No. 2019-10, ASU No. 2019-11 and ASU No. 2020-03 (ASU 2016-13). The provisions of ASU 2016-13 modify the impairment model to utilize an expected loss methodology in place of the currently used incurred loss methodology and require a consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The Company adopted the standard on January 1, 2023. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

3. Fair Value Measurements

The carrying values of the Company's prepaid expenses, and other current assets, accounts payable, and accrued expenses and other current liabilities approximate their fair value due to their short-term nature. The carrying value of the Company's term loan as of September 30, 2023 (see Note 8) approximated fair value based on interest rates currently available to the Company.

The table below presents information about the Company's assets and liabilities that are regularly measured and carried at fair value on a recurring basis at September 30, 2023 and December 31, 2022 and indicate the level within the fair value hierarchy of the valuation techniques the Company utilized to determine such fair value, which is described further within Note 2, Summary of Significant Accounting Policies.

Financial assets and liabilities measured at fair value on a recurring basis as of September 30, 2023 are summarized as follows (in thousands):

Description	Balance as of September 30, 2023	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Assets				
Cash equivalents:				
Money market funds	**$ 34,724**	**$34,724**	**$ —**	**$ —**
Restricted cash equivalents:				
Money market funds	**$ 5,000**	**$ 5,000**		
Total	**$ 39,724**	**$39,724**	**$ —**	**$ —**
Liabilities				
Convertible Notes	**$ 37,394**	**$ —**	**$ —**	**$ 37,394**
Total	**$ 37,394**	**$ —**	**$ —**	**$ 37,394**

Financial assets and liabilities measured at fair value on a recurring basis as of December 31, 2022 are summarized as follows (in thousands):

Description	Balance as of December 31, 2022	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Assets				
Cash equivalents:				
Money market funds	$ 42,496	$42,496	$ —	$ —
Restricted cash equivalents				
Money market funds	$ 5,000	$ 5,000	$ —	$ —
Total	$ 47,496	$47,496	$ —	$ —
Liabilities				
Convertible Notes	$ 32,402	$ —	$ —	$ 32,402
Total	$ 32,402	$ —	$ —	$ 32,402

Money market funds were valued by the Company using quoted prices in active markets for identical securities, which represent a Level 1 measurement within the fair value hierarchy. During the nine months ended September 30, 2023 and the year ended December 31, 2022, there were no transfers between Level 1, Level 2 and Level 3. There have been no impairments of the Company's assets measured and carried at fair value during the nine months ended September 30, 2023 and the year ended December 31, 2022.

The Company issued convertible notes totaling $30,000,000 during the period year ended December 31, 2022. The Company concluded that the Convertible Notes and its related features are within the scope of ASC 825, *Financial Instruments*, as a combined financial instrument, and the Company elected the fair value option where changes in fair value of the Convertible Notes are measured through the accompanying consolidated statement of operations and comprehensive loss until settlement. The Convertible Notes liability represents a Level 3 measurement within the fair value hierarchy as it has been valued using certain unobservable inputs. These inputs include the underlying fair value of the equity instrument into which the Convertible Notes are convertible. The fair value is based on significant inputs not observable in the market, namely potential financing scenarios, the likelihood of such scenarios, the expected time for each scenario to occur, and the required market rates of return utilized in modeling these scenarios.

September 30, 2023	Scenario 1	Scenario 2	Scenario 3
Probability of each scenario	70.0%	25.0%	5.0%
Expected Term (years)	0.34	0.34	0.50
Required market rates of return	15.0%	15.0%	15.0%

The Convertible Notes had an estimated fair value of $37.4 million as of September 30, 2023. The Company recorded in other income (expense), net an interest expense of $1.1 million and a charge of $3.9 million on the change in estimated fair value during the nine months ended September 30, 2023. There was no change in fair value attributable to the instrument-specific credit risk for the nine-month period ended September 30, 2023.

4. Property and Equipment, Net

Property and equipment, net consisted of the following as of (in thousands):

	September 30, 2023	December 31, 2022
Lab equipment	$ 1,382	$ 1,382
Furniture and fixtures	341	341
Computer equipment	85	85
Leasehold improvements	940	935
Total property and equipment	2,748	2,743
Less accumulated depreciation	(842)	(467)
Property and equipment, net	$ 1,906	$ 2,276

Depreciation expense for the nine months ended September 30, 2023 and 2022 was $0.4 million and $0.2 million, respectively. No impairment losses occurred in the nine months ended September 30, 2023 and 2022.

5. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following as of (in thousands):

	September 30, 2023	December 31, 2022
Payroll tax credit	$ 666	$ 948
Prepaid external research and development	1,543	1,329
Research credit receivable	14	116
Prepaid expenses	521	421
Other	101	146
Total prepaid expenses and other current assets	$ 2,845	$ 2,960

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of the following as of (in thousands):

	September 30, 2023	December 31, 2022
Accrued external research and development	$ 2,990	$ 4,077
Accrued compensation and related expenses	2,174	2,791
Accrued interest	—	376
Accrued taxes payable	65	570
Operating lease liability, current	521	471
Accrued professional services and other	1,649	1,212
Total accrued expenses and other current liabilities	$ 7,399	$ 9,497

7. Commitments and Contingencies

As of September 30, 2023, the Company has several ongoing clinical studies in various clinical trial stages. Its most significant contracts relate to agreements with clinical research organizations (CROs) for clinical trials and preclinical studies and contract development and manufacturing organizations (CMOs), which the Company enters into in the normal course of business. The contracts with CROs and CMOs are generally cancellable, with notice, at the Company's option.

License Agreements

License Agreement with the University of Colorado

In August 2017, the Company entered into an exclusive license agreement, as amended in February 2018, September 2018, and April 2019 (the Colorado License Agreement), with The Regents of the University of Colorado (Colorado), pursuant to which the Company obtained worldwide, royalty-bearing, sublicensable licenses under certain patents and know-how owned by Colorado and Medical University of South Carolina (MUSC) relating to the research, development and commercialization of ADX-097. The licenses granted to the Company are exclusive with respect to certain patent families and know-how and non-exclusive with certain other patent families and know-how. The licenses granted to the Company are also subject to certain customary retained rights of Colorado and MUSC and rights of the United States government owing to federal funding giving rise to inventions covered by the licensed patents. the Company agreed to use commercially reasonable efforts to develop, manufacture and commercialize ADX-097, including by using commercially reasonable efforts to achieve specified development and regulatory milestones by specified dates.

In addition, the Company agreed to pay Colorado (i) development and sales milestone payments in an aggregate amount of up to $2.2 million per licensed product for the first three products, (ii) tiered royalty rates on cumulative net sales of licensed products in the low single digit percentages, (iii) 15% of sublicense income and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents. the Company's obligation to pay royalties to Colorado commences, on a licensed product-by-licensed product and country-by-country basis, from the first commercial sale of a licensed product in any country and expires on the later of (a) the last to expire valid claim within the licensed patents covering such licensed product in such country, and (b) 20 years following the effective date of the Colorado License Agreement, or April 2037 (the Royalty Term).

Unless earlier terminated by either party pursuant to its terms, the Colorado License Agreement will expire upon the expiration of the Royalty Term in all countries. The Company may terminate the Colorado License Agreement for convenience upon providing prior written notice to Colorado. Colorado may terminate the Colorado License Agreement or convert the Company's exclusive license to a non-exclusive license if the Company breaches certain obligations under the Colorado License Agreement and fails to cure such breach. The Colorado License Agreement will terminate automatically upon the Company's dissolution, insolvency, or bankruptcy.

During the nine months ended September 30, 2023 and 2022, the Company recorded zero and $50 thousand, respectively in research and development expense for milestone related to the Colorado License Agreement. The financial statements as of September 30, 2023 and December 31, 2022 do not include liabilities with respect to royalty fees on the license agreement as the Company has not yet generated revenue and the achievement of certain milestones is not yet probable.

License Agreement with Bristol-Myers Squibb Company

In September 2019, the Company entered into a license agreement, as amended in August 2021 and July 2022 (the BMS License Agreement), with Bristol-Myers Squibb Company (BMS), pursuant to which the Company obtained sublicensable licenses from BMS to research, develop and commercialize licensed products, including bempikibart, for any and all uses worldwide. The licenses granted to the Company are exclusive with respect to BMS's patent rights and know-how relating to certain antibody fragments (including certain fragments of bempikibart) and non-exclusive with respect to BMS's patent rights and know-how relating to the composition of matter and use of a specific region of bempikibart. BMS retained the right for it and its affiliates to use the exclusively licensed patents and know-how for internal, preclinical research purposes. Under the BMS License Agreement, the Company is prohibited from engaging in certain clinical development or commercialization of any antibody other than a licensed compound with the same mechanism of action until the earlier of the expiration of Q32's obligation to pay BMS royalties or September 2029.

In consideration for the license, the Company made an upfront payment to BMS of $8 million, issued 6,628,788 Series A preferred shares to BMS and agreed to use commercially reasonable efforts to develop and commercialize at least one licensed product in key geographic markets. In addition, the Company agreed to pay BMS (i) development and regulatory milestone payments in aggregate amounts ranging from $32 million to $49 million per indication for the first three indications and commercial milestone payments in an aggregate amount of up to $215 million on net sales of licensed products, (ii) tiered royalties ranging from rates in the mid-single digit percentages to up to 10% of net sales, with increasing rates depending on the cumulative net sales, (iii) up to 60% of sublicense income, which percentage decreases based on the development stage of bempikibart at the time of the sublicensing event, and (iv) ongoing fees associated with the prosecution, maintenance, or filing of the licensed patents.

The Company's obligation to pay BMS royalties under subsection (ii) above commences, on a licensed product-by-licensed product and country-by-country basis on the first commercial sale of a licensed product in a country and expires on the later of (x) 12 years from the first commercial sale of such Licensed Product in such country, (y) the last to expire licensed patent right covering bempikibart or such licensed product in such country, and (z) the expiration or regulatory or marketing exclusivity for such licensed product in such country (Royalty Term). If the Company undergoes a change of control prior to certain specified phase of development, the development and milestone payments are subject to increase by a low double digit percentage and the royalty rates are subject to increase by a low sub single digit percentage.

Unless terminated earlier by either party pursuant to its terms, the BMS License Agreement will expire on a country-by-country and licensed product-by-licensed product basis upon the expiration of the last to expire Royalty Term with respect to such licensed product in such country. Either party may terminate the BMS License Agreement for the other party's material breach, subject to a specified notice and cure period. BMS may terminate the BMS License Agreement if the Company fails to meet its diligence obligations under the BMS License Agreement, for the Company's insolvency, or if the Company or its affiliates challenges the validity, scope, enforceability, or patentability of any of the licensed patents. The Company may terminate the BMS License Agreement for any reason upon prior written notice to BMS, with a longer notice period if a licensed product has received regulatory approval. If the BMS Agreement is terminated for the Company's material breach, BMS will regain rights to bempikibart and the Company must grant BMS an exclusive license under the Company's patent rights covering bempikibart, subject to a low single digit percentage royalty on net sales of bempikibart payable to the Company by BMS.

During the year ended December 31, 2019, the Company recorded in-process-research and development expense of $14.6 million in the statement of operations related to the BMS License Agreement comprised of $8.0 million of cash consideration and $6.6 million of Series A preferred shares issued to BMS.

As of September 30, 2023, no events have occurred that would require payment of the milestones, royalties or sublicense fees.

Legal Proceedings

The Company is not currently party to any material legal proceedings. At each reporting date, the Company evaluates whether or not a potential loss amount or a potential range of loss is probable and reasonably estimable under the provisions of FASB ASC Topic 450, *Contingencies*. The Company expenses as incurred the costs related to its legal proceedings.

Indemnification Arrangements

As permitted under Delaware law, the Company has agreements whereby it indemnifies certain of its investors, stockholders, employees, officers, and directors (collectively, the Indemnified Parties) for certain events or occurrences while the Indemnified Parties are, or were serving, at its request in such capacity. The maximum

potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited; however, the Company has an Executive Liability insurance policy that limits its exposure and enables it to recover a portion of any future amounts paid up to $5.0 million. The Company believes the estimated fair value of these indemnification agreements is minimal. The Company enters into standard indemnification agreements in the ordinary course of business. Pursuant to these agreements, the Company indemnifies, holds harmless, and agrees to reimburse the Indemnified Parties for losses suffered or incurred by the Indemnified Parties, generally the Company's business partners or customers, in connection with any U.S. patent or any copyright or other intellectual property infringement claim by any third party with respect to the Company's products. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited. The Company has never incurred costs to defend lawsuits or settle claims related to these indemnification agreements.

8. Debt

Venture Debt

On December 11, 2020 (the Effective Date), the Company entered into a Loan and Security Agreement with Silicon Valley Bank, a California corporation (the Loan Agreement) for a lending facility of up to $25 million. The Company received $5.0 million loan upon execution of the Agreement (Term A Loan Advance) and had the ability to draw up to $20.0 million in three separate term loan advances if certain performance milestones are met. The term loan bears interest at an annual rate equal to the greater of the prime rate or 3.25%. The Loan Agreement provides for interest-only payments until April 30, 2022, and repayment of the aggregate outstanding principal balance of the term loan in monthly installments starting on July 1, 2022 through December 1, 2023. The commencement of principal payments and the maturity date will be deferred by one year upon the occurrence of a contingent event. In addition, the Company paid a fee of $91 thousand upon closing and is required to pay a fee of 2.0% of the aggregate amount of advances under the Loan Agreement at maturity. At its option, the Company may elect to prepay all or a portion of the outstanding advances by paying the principal balance and all accrued and unpaid interest and a prepayment premium. In connection with the Loan Agreement, the Company granted the lender a security interest in all of its personal property now owned or hereafter acquired, excluding intellectual property (but including the rights to payment and proceeds from the sale, licensing or disposition of intellectual property), and a negative pledge on intellectual property. The Loan Agreement also contains certain events of default, representations, warranties and non-financial covenants of the Company. If the Company fails to make payments when due or breaches any operational covenant or has any event of default, this could have a material adverse effect on its business and financial condition. The Company was in compliance with all covenants at September 30, 2023 and December 31, 2022.

On June 30, 2022, a second amendment to the Loan Agreement was entered into with the lender that extended the interest-only payment until December 31, 2022 followed by 24 equal monthly payments of principal plus interest. The loan matures on December 31, 2024. The amendment increases the final payment from 2.0% to 4.0% of the advanced payment and modifies the prepayment premium.

On August 10, 2022, a third amendment to the Loan Agreement was entered into with the lender. Per the terms of the amendment and in conjunction with the Collaboration Agreement (as defined below), the Company transferred $5.0 million into a restricted cash collateral money market account which is included as Restricted cash and restricted cash equivalents on the balance sheet. This restricted cash equivalent covers the amount of the debt outstanding as of the third amendment effective date.

On December 21, 2022, a fourth amendment to the Loan Agreement was entered into with the lender that extended the interest-only payment until July 1, 2023 followed by 18 equal monthly payments of principal plus interest. The loan matures on December 1, 2024.

On April 26, 2023, a fifth amendment to the Loan Agreement was entered into with the lender. The amendment provides that the Company must maintain at least 50% of its consolidated cash with the lender. In addition, the

Company shall at all times have on deposit in operating and depository accounts maintained with the lender, unrestricted and unencumbered cash in an amount equal to the lesser of (i) 100% of the dollar value of the Company's consolidated cash and (ii) 110% of the then-outstanding obligations of the Company to the bank. So long as, the Company is in compliance with those terms, the Company shall be permitted to maintain accounts with other banks or financial institutions.

On July 12, 2023, a sixth amendment to the Loan Agreement was entered into with the lender. The amendment provides for one term loan advance (the 2023 Term A loan advance) in an original principal amount of $5.5 million and required the Company to repay the outstanding 2020 Term A Loan Advance of $5.0 million, including the final payment of $0.2 million. Upon the occurrence of a contingent event, the lender shall make up to three additional term loan advances at the Company's request in original principal amounts of $7.0 million, $7.5 million and $5.0 million. The amounts must be drawn by the Company before March 31, 2024, March 31, 2025 and July 1, 2025, respectively. The interest-only period extends through June 30, 2024 followed by 36 equal monthly payments of principal plus interest. The term loan bears interest at an annual rate equal to the greater of the prime rate minus 0.25%, or 8.00%.

On November 2, 2023, a seventh amendment to the Loan Agreement was entered into with the lender. The additional loan advance of $7.0 million, the first advance stated in the sixth amendment to the Loan Agreement, could be drawn down once the company received net proceeds of $75.0 million. The seventh amendment extends the time the Company has to receive the net proceeds to March 31, 2024 and provides that $37.5 million of the total $75 million requirement must be through the issuance and sale of equity securities.

In conjunction with the Loan Agreement, the Company issued warrants to purchase 166,371 shares of common stock to the lender at a per share price of $0.33 with a maximum contractual term of 10 years. The warrants had a total relative fair value of $39 thousand upon issuance and were recorded as a debt discount.

In conjunction with the sixth amendment, the Company issued warrants to purchase 211,528 shares of common stock to the lender at a per share price of $0.36 with a maximum contractual term of 10 years. The warrants are issued in two separate tranches of 105,764 based upon certain milestone events. The warrants had a de minimis total relative fair value at the time of issuance.

Pursuant to ASC Topic 480, *Distinguishing Liabilities from Equity* and ASC Topic 815, *Derivatives and Hedging*, the Warrants were classified as equity and were initially measured at fair value. Subsequent changes to fair value will not be recognized so long as the instrument continues to be equity classified.

Interest expense was $0.3 million and $0.2 million for the nine months ended September 30, 2023 and 2022, respectively. The effective rate on the Loan Agreement, including the amortization of the debt discount and issuance costs was 10.42% and 9.49% at September 30, 2023 and December 31, 2022, respectively. The components of the long-term debt balance are as follows (in thousands):

	September 30, 2023	December 31, 2022
Principal amount of term loans	**$ 5,500**	$ 5,000
Unamortized debt discount and issuance costs	**(71)**	72
Carrying amount	**5,429**	5,072
Less current portion	**418**	—
Long-term debt, net	**$ 5,011**	$ 5,072

Convertible Notes

On May 20, 2022, the Company entered into an agreement with the existing investors of the company to purchase up to an aggregate of $30.0 million in convertible notes (the Convertible Notes) through December 31,

2022. The Convertible Notes bear interest at 5.0% per annum. The Convertible Notes become due on demand of the Convertible Noteholders one year from the date of issuance. On May 20, August 5 and December 23, 2022, the Company received $8.3 million, $5.0 million, and $16.7 million, respectively, in exchange for issuance of the Convertible Notes.

The Convertible Notes contain mandatory conversion features whereby the total outstanding amount of principal and accrued and unpaid interest of the Convertible Notes shall automatically convert into shares of common stock upon certain qualified financings. The total outstanding amount of principal and accrued and unpaid interest of the Convertible Notes convert into common shares at 90% of the purchase price of the mandatory conversion events.

If the mandatory conversion events do not occur the holders of the Convertible Notes may request the Convertible Notes plus accrued interest to be converted into Series B preferred stock at the Series B convertible price of $1.0971.

The Company has elected to account for the Convertible Notes at fair value where changes in fair value of the notes are measured through the consolidated statements of operations and comprehensive loss until settlement. As the Convertible Notes are due on demand. the Company recorded the convertible notes at fair value totaling $37.4 million within current liabilities on its condensed consolidated balance sheet as of September 30, 2023. The Company recorded in other income (expense), net an interest expense of $1.1 million and a charge of $3.9 million related to the change in estimated fair value during the nine months ended September 30, 2023.

9. Common Stock

As of September 30, 2023 the Second Amended and Restated Certificate of Incorporation authorized the Company to issue 141,900,000 shares of common stock, $0.0001 par value per share, respectively.

The Company has reserved the following shares of common stock for future issuance:

	As of September 30, 2023	As of December 31, 2022
Shares reserved upon the conversion of authorized Series A preferred stock	**47,628,788**	47,628,788
Shares reserved upon the conversion of authorized Series A1 preferred stock	**6,500,000**	6,500,000
Shares reserved upon the conversion of authorized Series B preferred stock	**54,689,627**	54,689,627
Shares reserved for future issuance under the 2017 Stock Incentive Plan	**1,221,039**	1,669,058
Shares reserved for stock option exercises	**23,326,570**	22,997,639
Shares reserved for warrants	**377,899**	166,371
	133,743,923	133,651,483

10. Stock-Based Compensation

Grants under the 2017 Plan

The Company adopted the 2017 Stock Option and Grant Plan and subsequent amendments (the Plan) with 25,956,535 shares of common stock reserved for issuance to employees, directors, and consultants. The Plan allows for the grant of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock unit awards and other stock awards. Recipients of stock options are eligible to purchase shares of the

Company's common stock at an exercise price equal to the estimated fair market value of such stock on the date of grant. The maximum contractual term of options granted under the Plan is ten years, and the awards vest under such terms prescribed by the Company's Board.

Since inception, the Company has granted restricted stock awards, non-qualified stock options and incentive stock options. As of September 30, 2023, 1,221,039 shares remain available for future grant under the Plan.

Stock Options

Stock options granted by the Company typically vest over a four-year period and have a ten-year contractual term. The following table summarizes the Company's stock option activity under the 2017 Plan during the nine months ended September 30, 2023:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (In Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2022	22,997,639	$ 0.34	7.94	$ 362
Granted	2,098,138	0.36	—	
Exercised	(119,088)	0.26	—	
Cancelled	(1,650,119)	0.35	—	
Outstanding at September 30, 2023	23,326,570	$ 0.34	7.33	$ 349
Exercisable at September 30, 2023	11,937,586	$ 0.32	5.96	$ 348

The weighted-average grant date fair value per share of options granted in the period ended September 30, 2023 was $0.26. The total fair value of options vested for the nine months ended September 30, 2023 was $1.0 million. As of September 30, 2023, total unrecognized compensation costs to the unvested stock options were approximately $2.9 million, which are expected to be recognized over a weighted-average period of 2.6 years.

Stock-Based Compensation Expense

For purposes of calculating stock-based compensation, the Company estimates the fair value of stock options using the Black-Scholes option-pricing model. This model incorporates various assumptions, including the expected volatility, expected term, and interest rates.

The underlying assumptions used to value stock options granted using the Black-Scholes option-pricing model during the nine months ended September 30, 2023 were as follows:

	Nine months ended September 30,	
	2023	2022
Risk-free interest rate range	3.59% –4.14%	1.74% – 3.16%
Expected dividend rate	—	—
Expected term (years) range	5.45 –6.12	6.00 – 6.11
Expected stock price volatility range	88.9% – 89.8%	85.9% – 86.3%

Risk-Free Interest Rate – The risk-free rate assumption is based on the U.S. Treasury instruments, the terms of which were consistent with the expected term of the Company's stock options.

Expected Dividend – The expected dividend assumption is based on the Company's history and expectation of dividend payouts. The Company has not paid and does not intend to pay dividends.

Expected Term – The expected term of stock options represents the weighted average period the stock options are expected to be outstanding. The Company uses the simplified method for estimating the expected term, which calculates the expected term as the average time-to-vesting and the contractual life of the options for stock options issued to employees. The expected term for options granted to non-employees is based on the contractual life of the options.

Expected Volatility – Due to the Company's limited operating history and lack of company-specific historical or implied volatility, the expected volatility assumption was determined by examining the historical volatilities of a group of industry peers whose share prices are publicly available. The Company expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price.

Fair Value of Common Stock –

As there has been no public market for the Company's common stock to date, the estimated fair value of its common stock has been determined by its most recently available third-party valuations of common stock. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. The Company's common stock valuations were prepared using an option pricing method, or OPM. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. There are significant judgments and estimates inherent in the determination of the fair value of the Company's common stock. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of preferred securities, the superior likelihood of, achieving a liquidity event, such as an IPO or sale. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date.

Stock-Based Compensation Expense

The Company recorded stock-based compensation expense in the following expense categories of its statements of operations (in thousands):

	Nine months ended September 30,	
	2023	**2022**
Research and development	**$ 360**	$ 342
General and administrative	**546**	578
Total stock-based compensation expense	**$ 906**	$ 920

11. Agreements with Horizon

As of September 30, 2023, the Company has received $55.0 million of the $55.0 million transaction price from Horizon Therapeutics Ireland DAC (Horizon). The Company recognized $8.0 million of collaboration agreement revenue for the nine months ended September 30, 2023. As of September 30, 2023, approximately $40.3 million remains in collaboration deferred revenue, of which $24.8 million is included in deferred revenue, current portion and $15.5 million is included in deferred revenue, net of current portion on the consolidated balance sheets, based on anticipating timing of recognition of the amounts.

The Company concluded that the consideration allocated to the research service performance obligations should be recognized over time as Horizon receives the benefit of the research activities as the activities are performed.

The Company determined that this method is most appropriate as progress towards completion of research is largely driven by time and effort spent and costs incurred to perform this research. There are significant judgments and estimates inherent in the determination of the costs to be incurred for the research and development activities related to the collaboration with Horizon. These estimates and assumptions include a number of objective and subjective factors, including the potential third-party costs related to each of the Phase 2 clinical trial. Any changes to these estimates will be recognized in the period in which they change as a cumulative catch-up. The consideration allocated to the material right would have been included in the consideration associated with the sale of ADX-914 if the option had been exercised by Horizon or would have been recognized upon expiration of the option.

12. Related Party Transactions

The Company has consulting and advisory agreements with certain investors and board members which are considered related party transactions. For the nine months ended September 30, 2023 and the year ended December 31, 2022, the Company recorded expense of $19 thousand and $87 thousand, respectively, related to services provided by these investors.

No amounts were due to related parties at September 30, 2023 or December 31, 2022.

13. Income Taxes

The Company record a provision for income taxes of $65 thousand and $45 thousand for the nine months ended September 30, 2023 and September 30, 2022, respectively. The Company's effective tax rate of 0.2% differs from the U.S. statutory tax rate of 21.0% primarily as a result of the valuation allowance maintained against the Company's net deferred tax assets.

The Company has evaluated the positive and negative evidence involving its ability to realize its deferred tax assets and has considered its history of cumulative net losses incurred since inception and its lack of any commercially ready products. The Company has concluded that it is more likely than not that it will not realize the benefits of its deferred tax assets. The Company reevaluates the positive and negative evidence at each reporting period.

14. Net Loss per Share

Basic and diluted loss per share is computed by dividing net loss attributable to common stockholders by the weighted-average common shares outstanding.

The Company's potentially dilutive securities, which include convertible preferred stock, convertible notes, unvested restricted common stock, and stock options, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following from the computation of diluted net loss per share attributable to common stockholders because including them would have had an anti-dilutive effect:

	Nine months ended September 30,	
	2023	2022
Series A convertible preferred stock	47,628,788	47,628,788
Series A-1 convertible preferred stock	6,500,000	6,500,000
Series B convertible preferred stock:	54,689,627	54,689,627
Unvested restricted common stock	—	3,232
Options to purchase common stock	23,326,570	15,955,557

In addition, during the year ended December 31, 2022, the Company issued convertible notes with a principal balance of $30.0 million. These convertible notes and any accrued interest may convert into either a variable number of common shares or into shares of Series B Preferred Stock based on a fixed exchange ratio. Any shares of Series B Preferred Stock issued to settle the convertible notes would then be convertible into shares of common stock.

15. Subsequent Events

The Company has completed an evaluation of all subsequent events after the unaudited condensed consolidated balance sheet date of September 30, 2023 through December 15, 2023, the date these condensed consolidated financial statements were issued, to ensure that these condensed consolidated financial statements include appropriate disclosure of events both recognized in the condensed consolidated financial statements as of September 30, 2023, and events which occurred subsequently but were not recognized in the condensed consolidated financial statements. Non-recognizable subsequent events through December 15, 2023 are summarized below.

Rights to Bempikibart (formerly ADX-914)

As more fully discussed in Note 1 and Note 11, on August 12, 2022, the Company entered into a Collaboration and Option Agreement (the Horizon Collaboration Agreement) and an Asset Purchase Agreement (the Purchase Agreement, collectively with the Horizon Collaboration Agreement, the Horizon Agreements) with Horizon Therapeutics Ireland DAC (Horizon). Under the terms of the Horizon Agreements, the Company received an initial consideration and development funding under the bempikibart program totaling $55.0 million, which funded two ongoing Phase 2 trials for bempikibart. Horizon had an option to acquire bempikibart the program at a prespecified price, subject to certain adjustments. In October 2023, Amgen Inc. (Amgen) completed its acquisition of Horizon Therapeutics public limited company (Horizon plc). Following the closing of Amgen's acquisition of Horizon plc, the Company agreed with Amgen to mutually terminate the Horizon Agreements and in November 2023, the Company and Horizon entered into a termination agreement (the Horizon Termination Agreement), pursuant to which Horizon's option to acquire the bempikibart program was terminated. As a result, the Company retained all initial consideration and development funding received under the Horizon Collaboration Agreement and regained full development and commercial rights to bempikibart. In consideration for the Horizon Termination Agreement, the Company agreed to pay Horizon regulatory and sales milestones payments of up to an aggregate amount of $75.1 million upon the first achievement of certain regulatory and sales milestones with respect to bempikibart.

Amendment to Loan Agreement

On November 2, 2023, the Company executed a seventh amendment to the Loan Agreement. See Note 8 for details on the Loan Agreement and amendments.

Proposed Merger with Homology

On November 16, 2023, the Company entered into the Merger Agreement with Homology. See Note 1 for details.

Amendment to Certificate of Incorporation

On November 16, 2023, the Company amended its Second Amended and Restated Certificate of Incorporation to increase the number of its authorized common stock by 83,100,000 shares from 141,900,000 shares to 225,000,000 shares.

Stock Option Grants

In November 2023, the Company granted under the 2017 Stock Option Plan, 1,123,354, stock options to five individuals, which included new employees, executives and one consultant. Stock options were issued with an exercise price of $0.82 per share. The stock option awards vest in accordance with terms typically granted under the 2017 Stock Option Plan.

Annex A

Execution Version

AGREEMENT AND PLAN OF MERGER

by and among:

HOMOLOGY MEDICINES, INC.;

KENOBI MERGER SUB, INC.;

and

Q32 BIO INC.

Dated as of November 16, 2023

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EXHIBITS

AGREEMENT AND PLAN OF MERGER

THIS AGREEMENT AND PLAN OF MERGER (this "**Agreement**") is made and entered into as of November 16, 2023, by and among HOMOLOGY MEDICINES, INC., a Delaware corporation **(**"**Homology**"), KENOBI MERGER SUB, INC., a Delaware corporation and a direct, wholly owned subsidiary of Homology **(**"**Merger Sub**"), and Q32 BIO INC., a Delaware corporation ("**Q32**"). Certain capitalized terms used in this Agreement are defined in Section 1.1.

RECITALS

A. Homology and Q32 intend to effect a merger of Merger Sub with and into Q32 (the "**Merger**") in accordance with this Agreement and Delaware Law. Upon consummation of the Merger, Merger Sub will cease to exist and Q32 will become a wholly owned subsidiary of Homology.

B. The board of directors of Homology (the "**Homology Board**") has (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of Homology and its stockholders, (ii) approved and declared advisable this Agreement and the Contemplated Transactions, including the issuance of shares of Homology Common Stock to the stockholders of Q32 pursuant to the terms of this Agreement, the change of control of Homology and the other actions contemplated by this Agreement, and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholders of Homology vote to (a) approve the issuance of Homology Common Stock in the Merger and the change of control resulting from the Merger in accordance with Nasdaq Listing Rule 5635 (the "**Nasdaq Issuance Proposal**"), (b) approve an amendment to Homology's certificate of incorporation to increase the number of authorized shares from 200,000,000 shares of Homology Common Stock to 400,000,000 shares of Homology Common Stock (the "**Authorized Share Increase Proposal**") and (c) approve an amendment to Homology's certificate of incorporation to effect the Nasdaq Reverse Split (the "**Reverse Stock Split Proposal**" and, together with the Authorized Share Increase Proposal, the "**Charter Amendment Proposals**").

C. The board of directors of Merger Sub (the "**Merger Sub Board**") has (i) determined that the Contemplated Transactions are fair to, advisable, and in the best interests of Merger Sub and its sole stockholder, (ii) approved and declared advisable this Agreement and the Contemplated Transactions and (iii) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholder of Merger Sub votes to adopt this Agreement and thereby approve the Contemplated Transactions.

D. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to Q32's willingness to enter into this Agreement, the stockholders, officers and directors of Homology set forth on Section A of the Homology Disclosure Schedule (solely in their capacity as stockholders of Homology) are executing support agreements in favor of Q32 in substantially the form attached hereto as Exhibit A (the "**Homology Stockholder Support Agreement**"), pursuant to which such Persons have, subject to the terms and conditions set forth therein, agreed to vote all of their shares of Homology Common Stock in favor of this Agreement, the Nasdaq Issuance Proposal and the Charter Amendment Proposals.

E. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to Homology's willingness to enter into this Agreement, the officers, directors and stockholders (together with their Affiliates) of Q32 set forth on Section A of the Q32 Disclosure Schedule (solely in their capacity as stockholders of Q32) are executing support agreements in favor of Homology in substantially the form attached hereto as Exhibit B (the "**Q32 Stockholder Support Agreement**"), pursuant to which such Persons have, subject to the terms and conditions set forth therein, agreed to vote all of their shares of Q32 Capital Stock in favor of this Agreement.

F. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to Q32's willingness to enter into this Agreement, the officers and directors of Homology set forth on Section B of

the Homology Disclosure Schedule are executing lock-up agreements in substantially the form attached hereto as Exhibit C (collectively, the **"Homology Lock-Up Agreements**").

G. Concurrently with the execution and delivery of this Agreement and as a condition and inducement to Homology's willingness to enter into this Agreement, the officers, directors and stockholders of Q32 set forth on Section B of the Q32 Disclosure Schedule are executing lock-up agreements in substantially the form attached hereto as Exhibit D (collectively, the "**Q32 Lock-Up Agreements**").

H. It is expected that promptly after the Registration Statement is declared effective under the Securities Act, the stockholders of Q32 sufficient to adopt and approve this Agreement and the Merger as required under Delaware Law and Q32's Organizational Documents will execute and deliver an action by written consent in order to obtain the Required Q32 Stockholder Vote in the form mutually agreed to by Homology and Q32 (each, a "**Q32 Stockholder Written Consent**" and collectively, the "**Q32 Stockholder Written Consents**").

I. Concurrently with the execution and delivery of this Agreement, certain investors have executed a Subscription Agreement by and among Q32 and the Persons named therein (representing an aggregate commitment no less than the Concurrent Investment Amount), pursuant to which such Persons will have agreed to purchase the number of shares of Q32 Capital Stock set forth therein immediately prior to the Effective Time in connection with the Concurrent Financing (the "**Subscription Agreement**").

J. Each of the parties hereto intends that, for United States federal income tax purposes, the Merger will qualify as a "reorganization" within the meaning of Section 368(a) of the Internal Revenue Code of 1986, as amended (the "**Code**") and the Treasury Regulations, with respect to which each of Homology, Merger Sub, and Q32 are a "party to a reorganization" under Section 368(b) of the Code, and this Agreement is intended to constitute a "plan of reorganization" for purposes of Sections 354, 361 and 368 of the Code and within the meaning of Section 368 of the Code and Treasury Regulations Section 1.368-2(g) (the "**Intended Tax Treatment**").

AGREEMENT

The Parties, intending to be legally bound, agree as follows:

ARTICLE I
DEFINITIONS AND INTERPRETATIVE PROVISIONS

1.1 Definitions.

For purposes of this Agreement (including this Section 1.1):

"**2024 Equity Incentive Plan**" shall mean an equity incentive plan of Homology in form and substance as agreed to by Homology and Q32 (such agreement not to be unreasonably withheld, conditioned or delayed by either Party), reserving for issuance a number of shares of Homology Common Stock to be mutually agreed upon by Homology and Q32 (such agreement not to be unreasonably withheld, conditioned or delayed by either Party).

"**2024 ESPP**" shall mean an "employee stock purchase plan" of Homology in form and substance as agreed to by Homology and Q32 (such agreement not to be unreasonably withheld, conditioned or delayed by either Party), reserving for issuance a number of shares of Homology Common Stock to be mutually agreed upon to by Homology and Q32 (such agreement not to be unreasonably withheld, conditioned or delayed by either Party).

"**2024 Plans**" shall mean both the 2024 ESPP and the 2024 Equity Incentive Plan.

"**Acceptable Confidentiality Agreement**" means a confidentiality agreement containing terms not materially less restrictive in the aggregate to the counterparty thereto than the terms of the Confidentiality Agreement, except such confidentiality agreement need not contain any standstill, non-solicitation or no hire provisions.

"**Acquisition Inquiry**" means, with respect to a Party, an inquiry, indication of interest or request for information (other than an inquiry, indication of interest or request for information made or submitted by Q32, on the one hand, or Homology, on the other hand, to the other Party) that would reasonably be expected to lead to an Acquisition Proposal, other than, as applicable, with respect to the Legacy Asset Disposition and the Concurrent Financing.

"**Acquisition Proposal**" means, with respect to a Party, any offer or proposal, whether written or oral (other than an offer or proposal made or submitted by or on behalf of Q32 or any of its Affiliates, on the one hand, or by or on behalf of Homology or any of its Affiliates, on the other hand, to the other Party) contemplating or otherwise relating to any Acquisition Transaction with such Party, other than, as applicable, with respect to the Legacy Asset Disposition and the Concurrent Financing.

"**Acquisition Transaction**" means any transaction or series of related transactions (other than, as applicable, the Legacy Asset Disposition and the Concurrent Financing) involving:

(i) any merger, consolidation, amalgamation, share exchange, business combination, issuance of securities, acquisition of securities, reorganization, recapitalization, tender offer, exchange offer or other similar transaction: (A) in which a Party is a constituent entity, (B) in which a Person or "group" (as defined in the Exchange Act and the rules promulgated thereunder) of Persons directly or indirectly acquires beneficial or record ownership of securities representing more than 20% of the outstanding securities of any class of voting securities of a Party or any of its Subsidiaries or (C) in which a Party or any of its Subsidiaries issues securities representing more than 20% of the outstanding securities of any class of voting securities of such Party or any of its Subsidiaries; or

(ii) any sale, lease, exchange, transfer, license, acquisition or disposition of any business or businesses or assets that constitute or account for 20% or more of the consolidated book value or the fair market value of the assets of a Party and its Subsidiaries, taken as a whole.

"**Affiliate**" means, with respect to any Person, any other Person directly or indirectly controlling, controlled by, or under common control with such other Person. For purposes of this definition, "control" when used with respect to any Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities or partnership or other ownership interests, by contract or otherwise, and the terms "controlling" and "controlled" have correlative meanings.

"**Business Day**" means any day other than a day on which banks in the State of New York are authorized or obligated to be closed.

"**Cash and Cash Equivalents**" means all (i) cash and cash equivalents and (ii) marketable securities, in each case determined in accordance with GAAP.

"**COBRA**" means the Consolidated Omnibus Budget Reconciliation Act of 1985, as set forth in Section 4980B of the Code and Part 6 of Title I of ERISA.

"**Code**" means the Internal Revenue Code of 1986, as amended.

"**Concurrent Financing**" means the issuance and sale of shares of Q32 Capital Stock in a private placement to be consummated immediately prior to the Effective Time pursuant to the Subscription Agreement with aggregate gross cash proceeds of at least the Concurrent Investment Amount.

"**Concurrent Financing Allocation Percentage**" mean the quotient (rounded to four decimal places) determined by *dividing* (i) the Concurrent Financing Proceeds *by* (ii) the Aggregate Valuation.

"**Concurrent Financing Merger Shares**" means, subject to Section 2.4(g), the product determined by *multiplying* (i) the Post-Closing Homology Shares *by* (ii) the Concurrent Financing Allocation Percentage.

"**Concurrent Financing Proceeds**" means the proceeds resulting from the Concurrent Financing.

"**Concurrent Investment Amount**" means $42,000,000.

"**Confidentiality Agreement**" means the Confidentiality Agreement, dated as of July 31, 2023, by and between Q32 and Homology.

"**Consent**" means any approval, consent, ratification, permission, waiver or authorization (including any Governmental Authorization).

"**Contemplated Transactions**" means the Merger and the other transactions contemplated by this Agreement, including the CVR Agreement, the Concurrent Financing and the Charter Amendment Proposals.

"**Contract**" means, with respect to any Person, any written agreement, contract, subcontract, lease (whether for real or personal property), mortgage, license, or other legally binding commitment or undertaking of any nature to which such Person is a party or by which such Person or any of its assets are bound or affected under applicable Law.

"**Delaware Law**" means the General Corporation Law of the State of Delaware.

"**Effect**" means any effect, change, event, circumstance, or development.

"**Employee Plan**" means (i) each "employee benefit plan" within the meaning of Section 3(3) of ERISA whether or not subject to ERISA; (ii) any other plan, program, policy, agreement or arrangement providing for stock options, stock purchases, restricted stock, restricted stock units, phantom equity, other equity or equity-based incentives, employment agreements, bonuses, commissions, severance, retention, deferred compensation, change in control, transaction, supplemental income arrangements, vacation, retirement, pension, profit-sharing, post-retirement health and welfare, fringe, life insurance, perquisites, health, medical, dental, vision, welfare, employee assistance or similar benefits; and (iii) all other plans, programs, policies, agreements or arrangements (whether written or unwritten) providing compensation or benefits to any current or former employee, officer, director, individual independent contractor and other non-employee service provider.

"**Encumbrance**" means any lien, pledge, hypothecation, charge, mortgage, security interest, lease, license, option, easement, reservation, servitude, adverse title, claim, infringement, interference, option, right of first refusal, preemptive right, community property interest or restriction or encumbrance of any nature (including any restriction on the voting of any security, any restriction on the transfer of any security or other asset, any restriction on the receipt of any income derived from any asset, any restriction on the use of any asset and any restriction on the possession, exercise or transfer of any other attribute of ownership of any asset).

"**Enforceability Exceptions**" means the (i) Laws of general application relating to bankruptcy, insolvency and the relief of debtors and (ii) rules of law governing specific performance, injunctive relief and other equitable remedies.

"**Entity**" means any corporation (including any nonprofit corporation), partnership (including any general partnership, limited partnership or limited liability partnership), joint venture, estate, trust, company (including any company limited by shares, limited liability company or joint stock company), firm, society or other enterprise, association, organization or entity, and each of its successors.

"**Environmental Law**" means any federal, state, local or foreign Law relating to pollution or protection of human health or the environment (including ambient air, surface water, ground water, land surface or subsurface strata), including any law or regulation relating to emissions, discharges, releases or threatened releases of Hazardous Materials, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials.

"**ERISA**" means the Employee Retirement Income Security Act of 1974, as amended.

"**ERISA Affiliate**" means, with respect to any Entity, any other Person that would be treated as a single employer with such Entity, part of the same "controlled group" as such Entity or under common control with such Entity under Sections 414(b), (c), (m) or (o) of the Code, as applicable.

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

"**GAAP**" means United States generally accepted accounting principles.

"**Governmental Authority**" means any: (i) nation, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature, (ii) federal, state, local, municipal, foreign, supra-national or other government or institution, (iii) governmental or quasi-governmental authority of any nature (including any governmental division, department, agency, commission, bureau, instrumentality, official, ministry, fund, foundation, center, organization, unit, body or Entity and any court or other tribunal, and for the avoidance of doubt, any taxing authority) or (iv) self-regulatory organization (including Nasdaq).

"**Governmental Authorization**" means any: (i) permit, license, certificate, franchise, permission, variance, exception, order, approval, clearance, registration, qualification or authorization issued, granted, given or otherwise made available by or under the authority of any Governmental Authority or pursuant to any Law or (ii) right under any Contract with any Governmental Authority.

"**Hazardous Materials**" means any pollutant, chemical, substance and any toxic, infectious, carcinogenic, reactive, corrosive, ignitable or flammable chemical, or chemical compound, or hazardous substance, material or waste, whether solid, liquid or gas, that is subject to regulation, control or remediation under any Environmental Law, including without limitation, crude oil or any fraction thereof, and petroleum products or by-products.

"**Homology Associate**" means any current or former employee, officer, director, independent contractor or other non-employee service provider of Homology or any of its Subsidiaries.

"**Homology Balance Sheet**" means the audited balance sheet of Homology for the years ended December 31, 2021 and December 31, 2022**.**

"**Homology Capitalization Representations**" means the representations and warranties of Homology and Merger Sub set forth in Sections 4.6(a) and 4.6(d).

"**Homology Contract**" means any Contract: (i) to which Homology is a party, (ii) by which Homology or any Homology IP Rights or any other asset of Homology is or may become bound or under which Homology has, or may become subject to, any obligation or (iii) under which Homology has or may acquire any right or interest.

"**Homology Covered Person**" means, with respect to Homology as an "issuer" for purposes of Rule 506 promulgated under the Securities Act, any Person listed in the first paragraph of Rule 506(d)(1).

"**Homology Employee Plan**" means any Employee Plan that Homology or any of its Subsidiaries (i) sponsors, maintains, administers, or contributes to, or (ii) provides benefits under or through, or (iii) has any obligation to contribute to or provide benefits under or through, or (iv) may reasonably be expected to have any Liability with respect to, or (v) utilizes to provide benefits to or otherwise cover any Homology Associate.

"**Homology Equity Plans**" means the Homology 2015 Stock Incentive Plan, as amended from time to time and the Homology 2018 Incentive Award Plan, as amended from time to time.

"**Homology ESPP**" means the Homology 2018 Employee Stock Purchase Plan, as amended from time to time.

"**Homology Fundamental Representations**" means the representations and warranties of Homology and Merger Sub set forth in Sections 4.1(a), 4.1(b), 4.2, 4.3, 4.4, and 4.21.

"**Homology IP Rights**" means all Intellectual Property that is (i) owned by or purported to be owned, whether wholly or jointly with others, by Homology or any of its Subsidiaries ("**Homology Owned IP Rights**"), or (ii) licensed or sublicensed to Homology or any of its Subsidiaries ("**Homology Licensed IP Rights**"), in each case (i) and (ii), that is necessary for, or used or held for use in, the operation of the business of Homology as presently conducted.

"**Homology IP Rights Agreement**" means any Contract governing, related or pertaining to any Homology IP Rights.

"**Homology ITM Option**" means each Homology Option with an exercise price per share less than the closing trading price of a share of Homology Common Stock on the last full trading day on which the Homology Common Stock is traded prior to the date on which the Effective Time occurs.

"**Homology Lease Agreement**" means that certain Lease Agreement, dated December 21, 2017, by and between Homology and BCFP One Patriots Park LLC, as may be amended or supplemented from time to time.

"**Homology Legacy IP Rights**" means all Intellectual Property that is (i) owned by or purported to be owned, whether wholly or jointly with others, by Homology or any of its Subsidiaries, or (ii) licensed or sublicensed to Homology or any of its Subsidiaries, in each case (i) and (ii), that is solely related to the Legacy Assets.

"**Homology Material Adverse Effect**" means any Effect that, considered together with all other Effects that have occurred prior to the date of determination of the occurrence of a Homology Material Adverse Effect, has had or would reasonably be expected to have a material adverse effect on the business, asset, liabilities, financial condition or results of operations of Homology or its Subsidiaries, taken as a whole; provided, however, that Effects arising or resulting from the following, alone or in combination, shall not be taken into account in determining whether there has been a Homology Material Adverse Effect: (i) the announcement of this Agreement, the pendency or the consummation of the Contemplated Transactions, including any adverse change in customer, supplier, governmental, landlord, employee or similar relationships resulting therefrom or with respect thereto (other than, in the case of this clause (i), for purposes of Section 4.3, Section 4.4, or Section 4.5) (ii) the taking of any action, or the failure to take any action, by Homology that is expressly required under the terms of this Agreement, (iii) any natural disaster or epidemics, pandemics or other force majeure events, or any act or threat of terrorism or war, any armed hostilities or terrorist activities (including any escalation or general worsening of any of the foregoing) anywhere in the world or any governmental or other response or reaction to any of the foregoing, (iv) any change in GAAP or applicable Law or the interpretation thereof, (v) general economic, financial and capital markets, political conditions or conditions, including any instability in the banking sector, including the failure or placement into receivership of any financial institution, in each case generally affecting the industries in which Homology and its Subsidiaries operate, (vi) any change in the cash position of Homology and its Subsidiaries which results from operations in the Ordinary Course of Business, or (vii) any failure of Homology to meet any projections, business plans or forecasts (provided that, this clause (vii) shall not prevent a determination that any change or effect underlying such failure to meet projections, business plans or forecasts has resulted in a Homology Material Adverse Effect (to the extent such change or effect is not otherwise excluded from this definition of Homology Material Adverse Effect)); except in each case with respect to clauses (iii), (iv) and (v), to the extent disproportionately affecting Homology and its Subsidiaries,

taken as a whole, relative to other similarly situated companies in the industries in which Homology and its Subsidiaries operate.

"**Homology Net Cash**" means without duplication, (i) Homology's Cash and Cash Equivalents determined, to the extent in accordance with GAAP, in a manner consistent with the manner in which such items were historically determined and in accordance with the financial statements (including any related notes) contained or incorporated by reference in the Homology Balance Sheet, *minus* (ii) fees and expenses of Homology incurred in connection with the Contemplated Transactions, including for the avoidance of doubt, Transaction Expenses of Homology to the extent unpaid as of the Closing, *minus* (iii) expenses of Homology incurred in connection with the disposition of Legacy Assets and any contingent obligations or liabilities arising from such dispositions (including the full amount of any indemnity obligations), (iv) *minus* any and all Liabilities of Homology (A) to any Homology Associate for change in control or transaction bonuses, retention bonuses, severance or similar compensatory payments or benefits that are due and payable as a result of the completion of the Contemplated Transactions, together with any other event (in each case, including the employer portion of any payroll or similar Taxes payable with respect thereto), (B) with respect to the unfunded or underfunded portion of any accrued employer contributions to a defined contribution or any post-retirement health and welfare benefit plan, (C) accrued but unpaid bonuses, severance and vacation or paid time off (including the employer portion of any payroll or similar Taxes payable with respect thereto), (D) with respect to accounts payable, accruals and other current liabilities (which will include the Company's total deductible under its D&O Insurance less amounts paid prior to Closing (other than in connection with Transaction Litigation) that count toward such deductible), and (E) with respect to contractual commitments for future payments under Homology Real Estate Leases to the extent such commitments are incurred prior to Closing, *plus* (v) all prepaid expenses set forth on Section 1.1(a)(i) of the Homology Disclosure Schedule, *plus* (vi) expenses paid, or Liabilities incurred, prior to Closing, that are approved in writing to be covered and reimbursed by Homology's D&O insurance in excess of the deductible and within overall policy limits; provided that Q32 shall have received true and complete copies of all documentation provided by Homology's D&O insurance carrier reasonably evidencing that Homology will receive such reimbursements within ninety (90) days of the Anticipated Closing Date, *plus* (vii) prepaid deposits set forth on Section 1.1(b) of the Homology Disclosure Schedule, and *minus* (viii) the RSU Withholding Amount and the employer portion of any payroll or similar Taxes payable as a result of the vesting and settlement of each outstanding and unvested Homology Restricted Stock Unit pursuant to Section 5.13. For avoidance of doubt, (1) the Cash and Cash Equivalents received in the Concurrent Financing will be excluded from the calculation of Homology Net Cash and (2) the Cash and Cash Equivalents received from the disposition of Legacy Assets will be included in the calculation of Homology Net Cash.

"**Homology Options**" means options to purchase shares of Homology Common Stock granted by Homology under the Homology Equity Plans, but, for the avoidance of doubt, excluding the Homology ESPP.

"**Homology Registered IP**" means all Homology IP Rights that are owned or exclusively licensed by Homology or any of its Subsidiaries that are registered, filed or issued under the authority of, with or by any Governmental Authority, including all Patents, registered copyrights and registered trademarks and all applications for any of the foregoing.

"**Homology Restricted Stock Unit Awards**" means restricted stock unit awards covering shares of Homology Common Stock granted by Homology under the Homology 2018 Incentive Award Plan, as amended from time to time.

"**Homology Triggering Event**" shall be deemed to have occurred if: (i) Homology shall have failed to include in the Proxy Statement the Homology Board Recommendation, (ii) the Homology Board or any committee thereof shall have made a Homology Board Adverse Recommendation Change or approved, endorsed or recommended any Acquisition Proposal (other than with Q32), or (iii) Homology shall have entered into any letter of intent or similar document or any Contract relating to any Acquisition Proposal (other than an Acceptable Confidentiality Agreement pursuant to Section 5.4).

"**Intellectual Property**" means any and all intellectual property and similar proprietary rights throughout the world, including any and all state, United States, international and/or foreign or other territorial or regional rights in, arising out of or associated with any of the following: (i) United States, foreign and international patents, patent applications, including all provisionals, nonprovisionals, substitutions, divisional, continuations, continuations-in-part, reissues, renewals, extensions, supplementary protection certificates, reexaminations, term extensions, confirmations, certificates of invention and the equivalents of any of the foregoing, statutory invention registrations, invention disclosures and inventions (collectively, "**Patents**"), (ii) trademarks, service marks, trade names, domain names, corporate names, brand names, URLs or other names and locators associated with the internet, trade dress, logos and other source identifiers, including registrations and applications for registration thereof and goodwill associated therewith and symbolized thereby, (iii) works of authorship (whether or not copyrightable) and all copyrights, copyrightable works, derivative works, including registrations and applications for registration thereof, and all renewals, extensions, restorations or reversions of the foregoing, including all rights of authorship, use, publication, publicity, reproduction, distribution, income, performance and transformation, (iv) software, including all source code, object code, firmware, development tools files, records and data, all media on which any of the foregoing is recorded, and all related documentation, (v) all inventions, invention disclosures, improvements, formulae, customer lists, trade secrets, know-how (including recipes, specifications, formulae, manufacturing and other processes, operating procedures, methods, techniques and all research and development information), technology, technical data, databases, data collections, confidential information and other proprietary rights and intellectual property, whether patentable or not, and all documentation relating to any of the foregoing, (vi) all rights to sue or recover and retain damages and costs and attorneys' fees for the past, present or future infringement, dilution, misappropriation, or other violation of any of the foregoing anywhere in the world.

"**IRS**" means the United States Internal Revenue Service.

"**Key Employee**" means, with respect to any Person, (i) an executive officer of such Person; and (ii) any employee of such Person, that reports directly to the chief executive officer of such Person.

"**Knowledge**" means, with respect to an individual, that such individual is actually aware of the relevant fact or such individual would reasonably be expected to know such fact in the ordinary course of the performance of such individual's employment responsibilities. Any Person that is an Entity shall have Knowledge if any executive officer or director of such Person as of the date such knowledge is imputed has or should reasonably be expected to have Knowledge of such fact or other matter. With respect to any matters relating to Intellectual Property, such awareness or reasonable expectation to have knowledge does not require any such individual to conduct or have conducted or obtain or have obtained any freedom to operate opinions of counsel or any Intellectual Property rights clearance searches.

"**Law**" means any federal, state, national, supra-national, foreign, local or municipal or other law. Statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, regulation, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Authority (including under the authority of Nasdaq or the Financial Industry Regulatory Authority).

"**Legacy Asset Proceeds**" means the net proceeds, if any, resulting from the Legacy Asset Disposition prior to or concurrently with the Closing.

"**Legal Proceeding**" means any action, suit, litigation, arbitration, proceeding (including any civil, criminal, administrative, investigative or appellate proceeding), hearing, inquiry, audit, examination or investigation commenced, brought, conducted or heard by or before, or otherwise involving, any court or other Governmental Authority or any arbitrator or arbitration panel.

"**Multiemployer Plan**" means a "multiemployer plan," as defined in Section 3(37) or 4001 (a)(3) of ERISA.

"**Multiple Employer Plan**" means a "multiple employer plan" as described in Section 413(e) of ERISA.

"**Multiple Employer Welfare Arrangement**" means a "multiple employer welfare arrangement" within the meaning of Section 3(40) of ERISA.

"**Nasdaq**" means The Nasdaq Stock Market.

"**Nasdaq Reverse Split**" means a reverse stock split of all outstanding shares of Homology Common Stock at a reverse stock split ratio as mutually agreed to by Homology and Q32 that is effected by Homology prior to the Effective Time.

"**Notice Period**" means a period of at least three (3) Business Days commencing on the date the Homology Board notifies Q32 in writing of its intent to make a Homology Board Adverse Recommendation Change.

"**Order**" means any judgment, order, writ, injunction, ruling, decision or decree of (that is binding on a Party), or any plea agreement, corporate integrity agreement, resolution agreement, or deferred prosecution agreement with, or any settlement under the jurisdiction of, any court or Governmental Authority.

"**Ordinary Course of Business**" means, in the case of each of Q32 and Homology, such actions taken in the ordinary course of its normal operations and consistent with its past practices.

"**Organizational Documents**" means, with respect to any Person (other than an individual), (i) the certificate or articles of association or incorporation or organization or limited partnership or limited liability company, and any joint venture, limited liability company, operating or partnership agreement and other similar documents adopted or filed in connection with the creation, formation or organization of such Person and (ii) all bylaws, regulations and similar documents or agreements relating to the organization or governance of such Person, in each case, as amended or supplemented.

"**Party**" **or** "**Parties**" means Q32, Homology and Merger Sub.

"**Permitted Encumbrance**" means (i) any statutory liens for Taxes not yet due and payable or for Taxes that are being contested in good faith and for which adequate reserves have been made on the Q32 Balance Sheet or the Homology Balance Sheet, as applicable, in accordance with GAAP, (ii) liens that have arisen in the Ordinary Course of Business and that do not (in any case or in the aggregate) materially detract from the value of the assets subject thereto or materially impair the operations of Q32 or Homology, as applicable, (iii) statutory liens to secure obligations to landlords, lessors or renters under leases or rental agreements, (iv) deposits or pledges made in connection with, or to secure payment of, workers' compensation, unemployment insurance or similar programs mandated by Law, (v) statutory liens in favor of carriers, warehousemen, mechanics and materialmen, to secure claims for labor, materials or supplies and (vi) liens arising under applicable securities Law.

"**Person**" means any individual, Entity or Governmental Authority.

"**Personal Information**" means (i) data and information concerning an identifiable natural person, or (ii) any information that is regulated or protected by one or more Privacy Laws.

"**Privacy Laws**" mean Laws relating to privacy, security and/or collection, use or other processing of Personal Information.

"**Q32 Associate**" means any current or former employee, officer, director, independent contractor or other non-employee service provider of Q32 or any of its Subsidiaries.

"**Q32 Balance Sheet**" means the audited balance sheet of Q32 for the years ended December 31, 2021 and December 31, 2022**.**

"**Q32 Board**" means the board of directors of Q32.

"**Q32 Capital Stock**" means Q32 Common Stock and Q32 Preferred Stock.

"**Q32 Capitalization Representations**" means the representations and warranties of Q32 set forth in Sections 3.6(a) and 3.6(d).

"**Q32 Common Stock**" means the common stock, $0.0001 par value per share, of Q32.

"**Q32 Contract**" means any Contract: (i) to which Q32 or any of its Subsidiaries is a Party, (ii) by which Q32 or any of its Subsidiaries is or may become bound or under which Q32 or any of its Subsidiaries has, or may become subject to, any obligation or (iii) under which Q32 or any of its Subsidiaries has or may acquire any right or interest.

"**Q32 Convertible Notes**" means the outstanding unsecured convertible promissory notes, as amended, issued by Q32 pursuant to the Q32 Note Purchase Agreement.

"**Q32 Employee Plan**" means any Employee Plan that Q32 or any of its Subsidiaries (i) sponsors, maintains, administers, or contributes to, or (ii) provides benefits under or through, or (iii) has any obligation to contribute to or provide benefits under or through, or (iv) may reasonably be expected to have any Liability with respect to, or (v) utilizes to provide benefits to or otherwise cover any Q32 Associate (or their spouses, dependents, or beneficiaries).

"**Q32 Equity Plan**" means the Q32 2017 Stock Option Plan and Grant Plan, as amended from time to time.

"**Q32 Exchange Ratio**" means the quotient obtained by dividing (i) the number of Q32 Merger Shares by (ii) the number of Q32 Outstanding Shares.

"**Q32 Fundamental Representations**" means the representations and warranties of Q32 set forth in Sections 3.1(a), 3.1(b), 3.2, 3.3, 3.4, and 3.20.

"**Q32 IP Rights**" means all Intellectual Property that is (i) owned by or purported to be owned, whether wholly or jointly with others, by Q32 or any of its Subsidiaries ("**Q32 Owned IP Rights**"), or (ii) licensed or sublicensed by Q32 or any of its Subsidiaries ("**Q32 Licensed IP Rights**"), in each case (i) and (ii), that is necessary for, or used or held for use in, the operation of the business of Q32 and its Subsidiaries as presently conducted.

"**Q32 IP Rights Agreement**" means any Contract governing, related to or pertaining to any Q32 IP Rights other than any confidential information provided under confidentiality agreements.

"**Q32 Material Adverse Effect**" means any Effect that, considered together with all other Effects that have occurred prior to the date of determination of the occurrence of a Q32 Material Adverse Effect, has had or would reasonably be expected to have a material adverse effect on the business, assets, liabilities, financial condition or results of operations of Q32 or its Subsidiaries, taken as a whole; provided, however, that Effects arising or resulting from the following, alone or in combination, shall not be taken into account in determining whether there has been a Q32 Material Adverse Effect: (i) the announcement of this Agreement, the pendency or the consummation of the Contemplated Transactions, including any adverse change in customer, supplier, governmental, landlord, employee or similar relationships resulting therefrom or with respect thereto (other than, in the case of this clause (i), for purposes of Section 3.3, Section 3.4, or Section 3.5), (ii) the taking of any action, or the failure to take any action, by Q32 that is expressly required under the terms of this Agreement, (iii) any natural disaster or epidemics, pandemics or other force majeure events, or any act or threat of terrorism or war, any armed hostilities or terrorist activities (including any escalation or general worsening of any of the foregoing)

anywhere in the world or any governmental or other response or reaction to any of the foregoing, (iv) any change in GAAP or applicable Law or the interpretation thereof, (v) general economic, financial and capital markets, political conditions or conditions, including any instability in the banking sector, including the failure or placement into receivership of any financial institution, in each case generally affecting the industries in which Q32 and its Subsidiaries operate, (vi) any change in the cash position of Q32 and its Subsidiaries which results from operations in the Ordinary Course of Business, or (vii) any failure of Q32 to meet any projections, business plans or forecasts (provided that, this clause (vii) shall not prevent a determination that any change or effect underlying such failure to meet projections, business plans or forecasts has resulted in a Q32 Material Adverse Effect (to the extent such change or effect is not otherwise excluded from this definition of Q32 Material Adverse Effect)); except in each case with respect to clauses (iii), (iv) and (v), to the extent disproportionately affecting Q32 and its Subsidiaries, taken as a whole, relative to other similarly situated companies in the industries in which Q32 and its Subsidiaries operate.

"**Q32 Merger Shares**" means, subject to Section 2.4(f), the product determined by *multiplying* (i) the Post-Closing Homology Shares *by* (ii) the Q32 Allocation Percentage, in which:

(i) "**Aggregate Valuation**" means the sum of (A) the Q32 Equity Value, *plus* (B) the Homology Valuation, *plus* (C) the Concurrent Financing Proceeds.

(ii) "**Homology Allocation Percentage**" means the quotient (rounded to four decimal places) determined by *dividing* (A) the Homology Valuation *by* (B) the Aggregate Valuation.

(iii) "**Homology Equity Value**" means $80,000,000.

(iv) "**Homology Outstanding Shares**" means, subject to Section 2.4(f) (including, without limitation, the effects of the Nasdaq Reverse Split), the total number of shares of Homology Common Stock outstanding immediately prior to the Effective Time expressed on a fully-diluted basis, and assuming, without limitation or duplication, (A) the issuance of shares of Homology Common Stock in respect of all Homology ITM Options that will be outstanding as of immediately prior to the Effective Time calculated on a "treasury method" basis, (B) the settlement in shares of Homology Common Stock of Homology Restricted Stock Units outstanding as of immediately prior to the Effective Time on a net settlement basis as provided in Section 5.13 and (C) the exclusion of shares of Homology Common Stock held by Homology as treasury stock or owned by Q32 or any of its Subsidiaries or any Subsidiary of Homology immediately prior to the Effective Time.

(v) "**Homology Valuation**" means (A) the Homology Equity Value *minus* (B) the Homology Net Cash Deficiency (if any) *plus* (C) the Homology Net Cash Surplus (if any).

(vi) "**Q32 Allocation Percentage**" means the quotient (rounded to four decimal places) determined by *dividing* (A) the Q32 Equity Value *by* (B) the Aggregate Valuation.

(vii) "**Q32 Equity Value**" means $195,000,000.

(viii) "**Homology Net Cash Deficiency**" means, if Homology Net Cash is less than $59,500,000, then the amount, if any, that $60,000,000 exceeds the Homology Net Cash, calculated as of 12:01 am Eastern time on the Closing Date; provided, however, any such calculation with respect to Taxes shall be calculated as of the end of the Closing Date.

(ix) "**Post-Closing Homology Shares**" mean the quotient determined by *dividing* (A) the Homology Outstanding Shares *by* (B) the Homology Allocation Percentage.

(x) "**Homology Net Cash Surplus**" means, if Homology Net Cash is greater than $60,500,000, then the amount, if any, that the Homology Net Cash exceeds $60,000,000, calculated as of 12:01 am Eastern time on the Closing Date; provided, however, any such calculation with respect to Taxes shall be calculated as of the end of the Closing Date.

For the avoidance of doubt, the Concurrent Financing Proceeds shall not be included in the calculation or determination of the Homology Valuation or any component thereof. Set forth on Section 1.1(a)(ii) on the

Homology Disclosure Schedule is an illustrative example of the calculation of the Q32 Merger Shares calculation.

"**Q32 Note Purchase Agreement**" means the Note Purchase Agreement, by and among Q32 and the other parties thereto, dated as of May 20, 2022, as may be amended or supplemented from time to time.

"**Q32 Outstanding Shares**" means, the total number of shares of Q32 Common Stock outstanding immediately prior to the Effective Time (after giving effect to the Q32 Preferred Stock Conversion and the conversion of the Q32 Convertible Notes) expressed on a fully-diluted and as-converted to Q32 Common Stock on a "treasury method" basis and assuming, without limitation or duplication, the issuance of all shares of Q32 Common Stock that would be issued assuming the acceleration and exercise and conversion of all Q32 Options and Q32 Warrants outstanding as of immediately prior to the Effective Time.

"**Q32 Options**" means options to purchase shares of Q32 Common Stock granted by Q32 under the Q32 Equity Plan.

"**Q32 Preferred Stock**" means, collectively, the Series A Preferred Stock, Series A1 Preferred Stock and Series B Preferred Stock,

"**Q32 Registered IP**" means all Q32 IP Rights that are owned or exclusively licensed by Q32 or any of its Subsidiaries that are registered, filed, issued or otherwise granted under the authority of, with or by any Governmental Authority, including all patents, registered copyrights and registered trademarks and all applications and registrations for any of the foregoing.

"**Q32 Series A1 Preferred Stock**" means the preferred stock, $0.0001 par value per share, of Q32, designated as Series A1 Preferred Stock.

"**Q32 Series A Preferred Stock**" means the preferred stock, $0.0001 par value per share, of Q32, designated as Series A Preferred Stock.

"**Q32 Series B Preferred Stock**" means the preferred stock, $0.0001 par value per share, of Q32, designated as Series B Preferred Stock.

"**Q32 Triggering Event**" shall be deemed to have occurred if: (i) Q32 Board or any committee thereof shall have approved, endorsed or recommended any Acquisition Proposal or (ii) Q32 shall have entered into any letter of intent or similar document or any Contract relating to any Acquisition Proposal (other than an Acceptable Confidentiality Agreement as pursuant to Section 5.4).

"**Q32 Warrants**" means options to purchase shares of Q32 Common Stock issued under the Warrant Agreements.

"**Representatives**" means, with respect to any Person, such Person's directors, officers, employees, agents, attorneys, accountants, investment bankers, advisors and representatives.

"**Sarbanes-Oxley Act**" means the Sarbanes-Oxley Act of 2002.

"**SEC**" means the United States Securities and Exchange Commission.

"**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

"**Subsequent Transaction**" means any Acquisition Transaction (with all references to 20% in the definition of Acquisition Transaction being treated as references to 50% for these purposes).

"**Subsidiary**" means, with respect to a Person, an Entity of which more than 50% of the voting power of the equity securities or equity interests is owned, directly or indirectly, by such Person.

"**Superior Offer**" means an unsolicited bona fide written Acquisition Proposal (with all references to 20% in the definition of Acquisition Transaction being treated as references to 50% for these purposes) that: (i) was not obtained or made as a direct or indirect result of a breach of (or in violation of) this Agreement and (ii) is on terms and conditions that the Q32 Board or the Homology Board, as applicable, determines in good faith, based on such matters that it deems relevant (including the likelihood of consummation thereof and the financing terms and any termination or break-up fees and conditions to consummation thereof), as well as any written offer by the other Party to this Agreement to amend the terms of this Agreement, and following consultation with its outside legal counsel and financial advisors, if any, are more favorable, from a financial point of view, to Q32's stockholders or Homology's stockholders, as applicable, than the terms of the Contemplated Transactions and is not subject to any financing conditions (and if financing is required, such financing is then fully committed to the third party).

"**Tax**" means (i) any U.S. federal, state or local or non-U.S. tax, including any income tax, franchise tax, capital gains tax, gross receipts tax, value-added tax, surtax, estimated tax, unemployment tax, excise tax, ad valorem tax, transfer tax, stamp tax, sales tax, use tax, property tax, business tax, withholding tax, imputed underpayment amount, payroll tax, customs duty, escheat, unclaimed property, alternative or add-on minimum or other tax or similar charge (whether imposed directly or through withholding and whether or not disputed), and including any fine, penalty, addition to tax, interest or additional amount imposed by a Governmental Authority with respect thereto (or attributable to the nonpayment thereof) and (ii) any liability for payment of amounts described in clause (i) whether as a result of transferee or successor liability, of being a member of an affiliated, consolidated, combined or unitary group for any period, pursuant to a Contract, through operation of Law or otherwise.

"**Tax Return**" means any return (including any information return), report, statement, declaration, claim or refund, estimate, schedule, notice, notification, form, election, certificate or other document or information, and any amendment or supplement to any of the foregoing, filed or required to be filed with any Governmental Authority (or provided to a payee) in connection with the determination, assessment, collection or payment of any Tax or in connection with the administration, implementation or enforcement of or compliance with any Law relating to any Tax.

"**Transaction Expenses**" means, with respect to a Party, the aggregate amount (without duplication) of all costs, fees, and expenses incurred by such Party or any of its Subsidiaries (including Merger Sub), or for which such Party or any of its Subsidiaries are or may become liable in connection with the Contemplated Transactions and the negotiation, preparation and execution of this Agreement or any other agreement, document, instrument, filing, certificate, schedule, exhibit, letter or other document prepared or executed in connection with the Contemplated Transactions, including (i) any fees and expenses of legal counsel and accountants, the maximum amount of fees and expenses payable to financial advisors, investment bankers, brokers, consultants, tax advisors, transfer agents, proxy solicitor and other advisors of such Party; (ii) the premiums, commissions and other fees paid or payable in connection with obtaining Homology's D&O tail policy as set forth in Section 5.15(d); (iii) the premiums, commissions and other fees paid or payable in connection with obtaining Homology's Clinical Trial Insurance tail policy; and (iv) the CVR Fees.

"**Treasury Regulations**" means the United States Treasury regulations promulgated under the Code.

"**WARN Act**" means the Worker Adjustment and Retraining Notification Act of 1988, as amended, and any similar or related law.

"**Warrant Agreements**" means that certain (i) Warrant to Purchase Common Stock, by and between Q32 Bio Inc. and Silicon Valley Bank, issued on December 11, 2020 for 166,371 shares of Q32 Common Stock at an exercise price of $0.33 per share (subject to adjustments) and (ii) Warrant to Purchase Common Stock, by and between Q32 Bio Inc. and Silicon Valley Bank, issued on July 12, 2023 for 211,528 shares of Q32 Common Stock at an exercise price of $0.36 per share (subject to adjustments).

(ii) Each of the following terms is defined in the Section set forth opposite such term:

Term	Section
Abandoned Homology Legacy IP Rights	5.2
Accounting Firm	2.8(e)
Agreement	Preamble
Allocation Certificate	5.22
Anticipated Closing Date	2.8(a)
Assumed Option	2.4(g)
Assumed Option	2.4(i)
Authorized Share Increase Proposal	Recitals
Cash Determination Time	2.8(a)
Capitalization Date	4.6(a)
Certificate of Merger	2.1
Charter Amendment Proposals	Recitals
Closing	2.2
Closing Date	2.2
Code	Recitals
Costs	5.15(a)
Current Offering Period	5.15(a)
CVR	2.5(a)
CVR Agreement	2.5(a)
CVR Fees	2.5(b)
D&O Indemnified Parties	5.15(a)
D&O tail policy	5.15(d)
Delivery Date	2.8(a)
Dispute Notice	2.8(b)
Disqualifying Event	4.22
Drug Regulatory Agency	3.14(c)
Effective Time	2.1
Exchange Agent	2.7(a)
FDA	3.14(c)
FDCA	3.14(c)
Final Homology Net Cash	2.8(c)
Form S-4	5.7(a)
Homology	Preamble
Homology Board	Recitals
Homology Board Adverse Recommendation Change	5.9(b)
Homology Board Recommendation	5.9(b)
Homology Certifications	4.7(a)
Homology Closing Certificate	6.2(d)
Homology Common Stock	4.6(a)
Homology Designee	5.19(a)(i)
Homology Disclosure Schedule	Article IV
Homology IT Systems	4.23(b)
Homology Lease Agreement	5.5(b)

Term	Section
Homology Lock-Up Agreements	Recitals
Homology Material Contract	4.13(a)
Homology Net Cash Calculation	2.8(a)
Homology Net Cash Schedule	2.8(a)
Homology Permits	4.14(b)
Homology Preferred Stock	4.6(a)
Homology Product Candidates	4.14(d)
Homology Regulatory Permits	4.14(d)
Homology Real Estate Leases	4.11
Homology Stockholder Matters	5.9(a)
Homology Stockholder Meeting	5.9(a)
Homology Stockholder Support Agreement	Recitals
Information Statement	5.8(a)
Intended Tax Treatment	Recitals
Legacy Assets	0
Legacy Asset Disposition	0
Liability	3.9
Merger	Recitals
Merger Sub	Preamble
Merger Sub Board	Recitals
Nasdaq Issuance Proposal	Recitals
Ordinary Course Agreement	3.16(f)
Outside Date	8.1(b)
PHSA	3.14(c)
Pre-Closing Distribution	2.5(a)
Pre-Closing Period	5.1
Privacy Policies	3.22(a)
Proxy Statement	5.7(a)
Q32	Preamble
Q32 Board Recommendation	5.8(c)
Q32 Certification	3.7(a)
Q32 Closing Certificate	6.3(d)
Q32 Designee	5.19(a)(i)
Q32 Disclosure Schedule	Article III
Q32 Financial Statements	3.7(a)
Q32 IT Systems	3.22(b)
Q32 Lock-Up Agreements	Recitals
Q32 Material Contract	3.13(a)
Q32 Permits	3.14(b)
Q32 Preferred Stock Conversion	2.4(h)
Q32 Product Candidates	3.14(d)
Q32 Real Estate Leases	3.11
Q32 Regulatory Permits	3.14(d)
Q32 Stockholder Support Agreement	Recitals
Q32 Stockholder Written Consents	Recitals
Registration Statement	5.7(a)
Required Homology Stockholder Vote	4.4
Required Q32 Stockholder Vote	3.4
Response Date	2.8(b)
Reverse Stock Split Proposal	Recitals
RSU Withholding Amount	5.13

Term	Section
Subscription Agreement	Recitals
Surviving Corporation	2.1
Transfer Tax	5.16(a)

1.2 Other Definitional and Interpretative Provisions. The words "hereof," "herein" and "hereunder" and words of like import used in this Agreement shall refer to this Agreement as a whole and not to any particular provision of this Agreement. The captions herein are included for convenience of reference only and shall be ignored in the construction or interpretation hereof. References to Sections, Exhibits and Schedules are to Sections, Exhibits and Schedules of this Agreement unless otherwise specified. Any capitalized terms used in any Exhibit or Schedule but not otherwise defined therein shall have the meaning as defined in this Agreement. Any singular term in this Agreement shall be deemed to include the plural, and any plural term the singular, the masculine gender shall include the feminine and neuter genders; the feminine gender shall include the masculine and neuter genders; and the neuter gender shall include masculine and feminine gender. Whenever the words "include," "includes" or "including" are used in this Agreement, they shall be deemed to be followed by the words "without limitation," whether or not they are in fact followed by those words or words of like import. The word "or" is not exclusive. "Writing," "written" and comparable terms refer to printing, typing and other means of reproducing words (including electronic media) in a visible form. References to any agreement or Contract are to that agreement or Contract as amended, modified or supplemented from time to time in accordance with the terms hereof and thereof. References to any Person include the successors and permitted assigns of that Person. References to any statute are to that statute and to the rules and regulations promulgated thereunder, in each case as amended, modified, re-enacted thereof, substituted, from time to time. References to "$" and "dollars" are to the currency of the United States. All accounting terms used herein will be interpreted, and all accounting determinations hereunder will be made, in accordance with GAAP unless otherwise expressly specified. References from or through any date shall mean, unless otherwise specified, from and including or through and including, respectively. All references to "days" shall be to calendar days unless otherwise indicated as a "Business Day." Except as otherwise specifically indicated, for purposes of measuring the beginning and ending of time periods in this Agreement (including for purposes of "Business Day" and for hours in a day or Business Day), the time at which a thing, occurrence or event shall begin or end shall be deemed to occur in the Eastern time zone of the United States. The Parties agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting Party shall not be applied in the construction or interpretation of this Agreement. The Parties agree that the Q32 Disclosure Schedule or the Homology Disclosure Schedule shall be arranged in sections and subsections corresponding to the numbered and lettered sections and subsections contained in Article III or Article IV respectively. The disclosures in any section or subsection of the Q32 Disclosure Schedule or the Homology Disclosure Schedule shall qualify other sections and subsections in Article III or Article IV respectively, to the extent it is readily apparent from a reading of the disclosure that such disclosure is applicable to such other sections and subsections. The words "delivered" or "made available" mean, with respect to any documentation, (a) that prior to 5:00 p.m. (New York City time) on the date that is the day prior to the date of this Agreement, a copy of such material has been posted to and made available by a Party to the other Party and its Representatives in the electronic data room maintained by such disclosing Party for the purposes of the Contemplated Transactions or (b) delivered by or on behalf of a Party or its Representatives to the other Party or its Representatives via electronic mail prior to the execution of this Agreement. The inclusion of any information in the Q32 Disclosure Schedule or Homology Disclosure Schedule (or any update thereto) shall not be deemed to be an admission or acknowledgement, in and of itself, that such information is required by the terms hereof to be disclosed, is material, has resulted in or would result in a Q32 Material Adverse Effect or Homology Material Adverse Effect, as the case may be, or is outside the Ordinary Course of Business.

ARTICLE II
THE MERGER

2.1 The Merger. Upon the terms and subject to the conditions set forth in this Agreement and subject to the applicable provisions of Delaware Law, at the Closing, Homology and Q32 shall cause Merger Sub to be merged with and into Q32, whereupon the separate existence of Merger Sub shall cease and Q32 shall continue as the Surviving Corporation of the Merger and as a wholly owned subsidiary of Homology (the "**Surviving Corporation**"). At the Closing, Homology and Q32 shall cause the Merger to be consummated and effective under Delaware Law by executing and filing with the Secretary of State of the State of Delaware a certificate of merger, satisfying the applicable requirements of Delaware Law in a form to be mutually agreed by the Parties prior to the Closing (the "**Certificate of Merger**"). The Merger shall become effective at the time of the filing of such Certificate of Merger and the acceptance by the Secretary of State of the State of Delaware, or at such later time as may be specified in such Certificate of Merger with the consent of Homology and Q32 (the time as of which the Merger becomes effective being referred to as the "**Effective Time**").

2.2 Closing. Subject to the satisfaction or waiver of the conditions set forth in this Agreement, the consummation of the Merger (the "**Closing**") shall take place remotely, (a) no later than the second (2nd) Business Day after all the conditions precedent set forth in Article VI shall have been satisfied or waived (other than those conditions that, by their nature, are to be satisfied at the Closing (provided such conditions would be so satisfied)) or (b) at such other time, date and place as the Parties may mutually agree in writing. The date on which the Closing actually takes place is referred to as the "**Closing Date**".

2.3 Organizational Documents; Directors and Officers.

(a) Certificate of Incorporation. The certificate of incorporation of the Surviving Corporation shall be amended and restated at or prior to the Effective Time as set forth in an exhibit to the Certificate of Merger, and as so amended and restated shall be the certificate of incorporation of the Surviving Corporation until thereafter amended as provided by Delaware Law. Homology shall further take all actions necessary so that the certificate of incorporation of Homology shall remain in effect following the Effective Time, until thereafter amended as provided by Delaware Law, provided, however, that at or prior to the Effective Time, Homology shall file one or more amendments to its certificate of incorporation to (i) change the name of Homology to Q32 Bio Inc., (ii) effect the Nasdaq Reverse Split and the Authorized Share Increase Proposal and (iii) make such other changes as are mutually agreeable to Homology and Q32.

(b) Bylaws. The bylaws of the Surviving Corporation shall be amended and restated as of the Effective Time to be the same as the bylaws of Merger Sub as in effect immediately prior to the Effective Time (with the name of Q32 as the Surviving Corporation's name) until thereafter amended in accordance with Delaware Law and as provided in the Surviving Corporation's Organizational Documents.

(c) Directors and Officers. The directors and officers, each to hold office in accordance with the provisions of Delaware Law and the Surviving Corporation's Organizational Documents immediately after the Effective Time, shall be as set forth in Section 5.19.

2.4 Conversion of Shares.

(a) At the Effective Time (after giving effect to Q32 Preferred Stock Conversion), by virtue of the Merger and without any further action on the part of Homology, Merger Sub, Q32 or any stockholder of Q32, subject to Section 2.4(d), the Q32 Common Stock outstanding immediately prior to the Effective Time (excluding Q32 Common Stock issued in the Concurrent Financing) shall be converted solely into the right to receive a number of shares of Homology Common Stock equal to the amount of Q32 Merger Shares multiplied by the applicable stockholder's percentage interest in Q32 as set forth on the Allocation Certificate.

(b) At the Effective Time, by virtue of the Merger and without further action on the part of Homology, Merger Sub, Q32 or any stockholder of Q32, subject to Section 2.4(d), the Q32 Common Stock issued in the Concurrent Financing shall be converted solely into the right to receive a number of shares of Homology Common Stock equal to the amount of Concurrent Financing Merger Shares multiplied by the percentage of the Concurrent Financing Proceeds represented by the applicable stockholder's investment in the Concurrent Financing, as set forth on the Allocation Certificate.

(c) If any Q32 Common Stock outstanding immediately prior to the Effective Time is unvested or is subject to a repurchase option or a risk of forfeiture under any applicable restricted stock, restricted stock unit award agreement or other similar agreement with Q32, then the shares of Homology Common Stock issued in exchange for such Q32 Common Stock will to the same extent be unvested and subject to the same repurchase option or risk of forfeiture, and such shares of Homology Common Stock shall accordingly be marked with appropriate legends. Q32 shall take all actions that may be necessary to ensure that, from and after the Effective Time, Homology is entitled to exercise any such repurchase option or other right set forth in any such restricted stock unit award agreement or other agreement.

(d) No fractional shares of Homology Common Stock shall be issued in connection with the Merger, and no certificates or scrip for any such fractional shares shall be issued, with no cash being paid for any fractional share eliminated by such rounding. Any fractional shares of Homology Common Stock a holder of Q32 Common Stock would otherwise be entitled to receive shall be aggregated together first prior to eliminating any remaining fractional share.

(e) At the Effective Time, by virtue of the Merger and without any further action on the part of Homology, Merger Sub, Q32 or any stockholder of Q32, each share of common stock, $0.01 par value per share, of Merger Sub issued and outstanding immediately prior to the Effective Time shall be converted into and exchanged for one validly issued, fully paid and nonassessable share of common stock, $0.0001 par value per share, of the Surviving Corporation. If applicable, each stock certificate of Merger Sub evidencing ownership of any such shares shall, as of the Effective Time, evidence ownership of such shares of common stock of the Surviving Corporation until presented for transfer or exchange.

(f) If, between the date of this Agreement and the Effective Time, the outstanding Q32 Common Stock or Homology Common Stock shall have been changed into, or exchanged for, a different number of shares or a different class, by reason of any stock dividend, subdivision, reclassification, recapitalization, split (including the Nasdaq Reverse Split to the extent such split has not previously been taken into account in calculating Q32 Merger Shares), combination or exchange of shares or other like change, Q32 Merger Shares shall, to the extent necessary, be equitably adjusted to reflect such change to the extent necessary to provide the holders of Q32 Common Stock and Homology Common Stock with the same economic effect as contemplated by this Agreement prior to such stock dividend, subdivision, reclassification, recapitalization, split, combination or exchange of shares or other like change; provided, however, that nothing herein will be construed to permit Q32 or Homology to take any action with respect to Q32 Common Stock or Homology Common Stock, respectively, that is prohibited or not expressly permitted by the terms of this Agreement.

(g) Each Q32 Option outstanding immediately prior to the Effective Time shall automatically without any further action on the part of Homology, Merger Sub, Q32 or any holder of a Q32 Option, be converted, at the Effective Time, into an option (an "**Assumed Option**") to acquire, on the same terms and conditions (including the same vesting and exercisability terms and conditions) as were applicable under the Q32 Equity Plan and option agreement applicable to such Q32 Option immediately prior to the Effective Time, the number of shares of Homology Common Stock determined by multiplying the number of shares of Q32 Common Stock subject to such Q32 Option immediately prior to the Effective Time by the Q32 Exchange Ratio, rounding down to the nearest whole number of shares, at a per share exercise price determined by dividing the per share exercise price of such Q32 Option immediately prior to the Effective Time by the Q32 Exchange Ratio, rounding up to the nearest whole cent; provided, that the conversion of the Q32 Options will be made in a manner consistent with

Treasury Regulations Section 1.424-1, such that the conversion will not constitute a "modification" of such Q32 Options for purposes of Section 409A or Section 424 of the Code. As of the Effective Time, Homology will assume the Q32 Equity Plan.

(h) All Q32 Preferred Stock shall be converted into Q32 Common Stock as of immediately prior to the Effective Time in accordance with, and pursuant to the terms and conditions of, the Organizational Documents of Q32 (the "**Q32 Preferred Stock Conversion**").

(i) At the Effective Time, each Q32 Warrant, to the extent outstanding and unexercised, shall automatically, without any action on the part of the holder thereof, be converted into a warrant to acquire a number of shares of Homology Common Stock(each such resulting warrant, an "**Assumed Warrant**"). Each Assumed Warrant shall be subject to the same terms and conditions as were applicable to such corresponding Q32 Warrant immediately prior to the Effective Time (including applicable vesting conditions), except (i) each Assumed Warrant will be exercisable (or will become exercisable in accordance with its terms) for that number of whole shares of Homology Common Stock equal to the product of the number of Q32 Merger Shares that were issuable upon exercise of such Q32 Warrant immediately prior to the Effective Time multiplied by the Q32 Exchange Ratio, rounded down to the nearest whole number of shares of Homology Common Stock, (ii) the per share exercise price for the shares of Homology Common Stock issuable upon exercise of such Assumed Warrant will be equal to the quotient determined by dividing the exercise price per share of Q32 Common Stock at which such Q32 Warrant was exercisable immediately prior to the Effective Time by the Q32 Exchange Ratio, rounded up to the nearest whole cent, and (iii) for terms rendered inoperative by reason of the transactions contemplated by this Agreement (including any anti-dilution or other similar provisions that adjust the number of underlying shares that could become exercisable subject to such Q32 Warrant).

(j) Immediately prior to the Effective Time, the Company shall cause the outstanding principal and accrued but unpaid interest on Q32 Convertible Notes to be converted into the applicable number of shares of Q32 Common Stock provided for under the terms of such Q32 Convertible Note (the "**Convertible Notes Conversion**"). All of Q32 Convertible Notes converted into shares of Q32 Common Stock shall no longer be outstanding and shall cease to exist, and each holder of Q32 Convertible Notes shall thereafter cease to have any rights with respect to Q32 Convertible Notes. Immediately following the Convertible Notes Conversion, at the Effective Time and by virtue of the Merger, all shares of Q32 Common Stock issued in the Convertible Notes Conversion shall be canceled and converted into the right to receive Homology Common Stock pursuant to this Section 2.4.

2.5 Contingent Value Right.

(a) Prior to the Effective Time, Homology shall declare a distribution (the "**Pre-Closing Distribution**") to holders of Homology Common Stock of record the right to receive one contingent value right (each, a "**CVR**") for each outstanding share of Homology Common Stock held by such stockholder as of such date, each representing the right to receive contingent payments upon the occurrence of certain events set forth in, and subject to and in accordance with the terms and conditions of, the Contingent Value Rights Agreement in the form attached hereto as Exhibit E, to be entered into between Homology and Equiniti Trust Company, LLC (or such other nationally recognized rights agent agreed to between Homology and Q32) (the "**Rights Agent**"), with such revisions thereto requested by the Rights Agent that are not, individually or in the aggregate, materially detrimental to the holders of CVRs and reasonably acceptable to Homology and Q32 (the "**CVR Agreement**"). The record date for the Pre-Closing Distribution shall be the close of business on the last Business Day prior to the day on which the Effective Time occurs and the payment date for the Pre-Closing Distribution shall be three (3) Business Days after the Effective Time; provided that the payment of such distribution may be conditioned upon the occurrence of the Effective Time. In connection with the Pre-Closing Distribution, Homology shall cause the CVR Agreement to be duly authorized, executed and delivered by Homology and the Exchange Agent.

(b) Homology agrees to pay all reasonable costs and fees associated with any action contemplated by this Section 2.5 (the "**CVR Fees**").

2.6 Closing of Q32's Transfer Books. At the Effective Time: (a) all Q32 Common Stock outstanding immediately prior to the Effective Time shall be treated in accordance with Section 2.4(a) and Section 2.4(b), as applicable, and all holders of certificates representing Q32 Common Stock that were outstanding immediately prior to the Effective Time shall cease to have any rights as stockholders of Q32 (other than the right to receive Q32 Merger Shares) and (b) the stock transfer books of Q32 shall be closed with respect to all Q32 Common Stock outstanding immediately prior to the Effective Time. No further transfer of any such Q32 Common Stock shall be made on such stock transfer books after the Effective Time.

2.7 Surrender of Q32 Common Stock.

(a) On or prior to the Closing Date, Homology and Q32 shall jointly select a reputable bank, transfer agent or trust company to act as exchange agent in the Merger (the "**Exchange Agent**"). At the Effective Time, Homology shall deposit with the Exchange Agent evidence of book-entry shares representing the shares of Homology Common Stock issuable pursuant to Section 2.4(a) in exchange for Q32 Common Stock.

(b) Promptly after the Effective Time, the Parties shall cause the Exchange Agent to mail to the Persons who were record holders of Q32 Common Stock that were converted into the right to receive Q32 Merger Shares: (i) a letter of transmittal in customary form and containing such provisions as Homology may reasonably specify and (ii) instructions for effecting the surrender of Q32 Common Stock in exchange for book-entry shares of Homology Common Stock. Upon surrender of a duly executed letter of transmittal and such other documents as may be reasonably required by the Exchange Agent or Homology, the holder of such Q32 Common Stock shall be entitled to receive in exchange therefor book-entry shares representing Q32 Merger Shares (in a number of whole shares of Homology Common Stock) that such holder has the right to receive pursuant to the provisions of Section 2.4(a).

(c) No dividends or other distributions declared or made with respect to Homology Common Stock with a record date after the Effective Time shall be paid to the holder of any Q32 Common Stock with respect to the shares of Homology Common Stock that such holder has the right to receive in the Merger until such holder delivers a duly executed letter of transmittal (at which time (or, if later, on the applicable payment date) such holder shall be entitled, subject to the effect of applicable abandoned property, escheat or similar Laws, to receive all such dividends and distributions, without interest).

(d) Any shares of Homology Common Stock deposited with the Exchange Agent that remain undistributed to holders of Q32 Common Stock as of the date that is 180 days after the Closing Date shall be delivered to Homology upon demand, and any holders of Q32 Common Stock who have not theretofore delivered a duly executed letter of transmittal in accordance with this Section 2.7 shall thereafter look only to Homology for satisfaction of their claims for Homology Common Stock and any dividends or distributions with respect to shares of Homology Common Stock.

(e) No Party shall be liable to any holder of any Q32 Common Stock or to any other Person with respect to any shares of Homology Common Stock (or dividends or distributions with respect thereto) or for any cash amounts delivered to any public official pursuant to any applicable abandoned property Law, escheat Law or similar Law.

2.8 Calculation of Net Cash.

(a) Not less than ten (10) Business Days prior to the anticipated date for Closing as mutually agreed in good faith by Homology and Q32 (the "**Anticipated Closing Date**"), Homology will deliver to Q32 a schedule (the "**Homology Net Cash Schedule**", and the date of delivery of the Homology Net Cash Schedule, the "**Delivery Date**") setting forth, in reasonable detail, Homology's good faith, estimated calculation of Homology Net Cash (the "**Homology Net Cash Calculation**") as of the close of business on the Closing Date (the "**Cash Determination Time**") prepared and certified by Homology's chief financial officer (or if there is no chief

financial officer at such time, the principal financial and accounting officer for Homology). Homology shall make available to Q32 (electronically to the greatest extent possible), as reasonably requested by Q32, the work papers and back-up materials used or useful in preparing the Homology Net Cash Schedule and, if reasonably requested by Q32, Homology's accountants and counsel at reasonable times and upon reasonable notice. The Homology Net Cash Calculation shall include Homology's determination, as of the Cash Determination Time, of the defined terms in Section 1.1 necessary to calculate Q32 Merger Shares. Set forth on Section 2.8(a) of the Homology Disclosure Schedule is an illustrative example of Homology Net Cash calculation calculated on a hypothetical basis as of the date described therein.

(b) Within five (5) Business Days after the Delivery Date (the last day of such period, the "**Response Date**"), Q32 shall have the right to dispute any part of the Homology Net Cash Calculation by delivering a written notice to that effect to Homology (a "**Dispute Notice**"). Any Dispute Notice shall identify in reasonable detail and to the extent known the nature and amounts of any proposed revisions to the Homology Net Cash Calculation.

(c) If, on or prior to the Response Date, Q32 notifies Homology in writing that it has no objections to the Homology Net Cash Calculation or, if prior to 5:00 p.m. (New York City time) on the Response Date, Q32 has failed to deliver a Dispute Notice as provided in Section 2.8(b), then the Homology Net Cash Calculation as set forth in the Homology Net Cash Schedule shall be deemed to have been finally determined for purposes of this Agreement and to represent the Homology Net Cash at the Cash Determination Time (the "**Final Homology Net Cash**") for purposes of this Agreement.

(d) If Q32 delivers a Dispute Notice on or prior to 5:00 p.m. (New York City time) on the Response Date, then Representatives of Homology and Q32 shall promptly, and in no event later than one calendar day after the Response Date, meet and attempt in good faith to resolve the disputed item(s) and negotiate an agreed-upon determination of Homology Net Cash, which agreed upon Homology Net Cash amount shall be deemed to have been finally determined for purposes of this Agreement and to represent the Final Homology Net Cash for purposes of this Agreement.

(e) If Representatives of Homology and Q32 are unable to negotiate an agreed-upon determination of Final Net Cash pursuant to Section 2.8(d) within two (2) calendar days after delivery of the Dispute Notice (or such other period as Homology and Q32 may mutually agree upon), then any remaining disagreements as to the calculation of Homology Net Cash shall be referred to an independent auditor of recognized national standing jointly selected by Homology and Q32 or another independent auditor of recognized national standing mutually agreed upon by Homology and Q32 (the "**Accounting Firm**"). Homology shall promptly deliver to the Accounting Firm all work papers and back-up materials used in preparing the Homology Net Cash Schedule, and Homology and Q32 shall use commercially reasonable efforts to cause the Accounting Firm to make its determination within five (5) calendar days of accepting its selection. Homology and Q32 shall be afforded the opportunity to present to the Accounting Firm any material related to the unresolved disputes and to discuss the issues with the Accounting Firm; *provided*, *however*, that no such presentation or discussion shall occur without the presence of a Representative of each of Homology and Q32. The determination of the Accounting Firm shall be limited to the disagreements submitted to the Accounting Firm. The determination of the amount of Homology Net Cash made by the Accounting Firm shall be made in writing delivered to each of Homology and Q32, shall be final and binding on Homology and Q32 and shall be deemed to have been finally determined for purposes of this Agreement and to represent the Final Homology Net Cash for purposes of this Agreement. The Parties shall delay the Closing until the resolution of the matters described in this Section 2.8(e). The fees and expenses of the Accounting Firm shall be allocated between Homology and Q32 in the same proportion that the disputed amount of the Homology Net Cash that was unsuccessfully disputed by such Party (as finally determined by the Accounting Firm) bears to the total disputed amount of the Homology Net Cash amount and such portion of the costs and expenses of the Accounting Firm borne by Q32 and any other fees, costs or expenses incurred by Q32 following the Anticipated Closing Date in connection with the procedures set forth in this Section 2.8(e) shall be deducted from the final determination of the amount of Homology Net Cash. If this

Section 2.8(e) applies as to the determination of the Final Homology Net Cash described in Section 2.8(a), upon resolution of the matter in accordance with this Section 2.8(e), the Parties shall not be required to determine Homology Net Cash again even though the Closing Date may occur later than the Anticipated Closing Date, except that either Homology and Q32 may require a redetermination of the Final Homology Net Cash if the Closing Date is more than ten (10) calendar days after the Anticipated Closing Date.

2.9 Further Action. If, at any time after the Effective Time, any further action is determined by the Surviving Corporation to be necessary or desirable to carry out the purposes of this Agreement or to vest the Surviving Corporation with full right, title and possession of and to all rights and property of Q32, then the officers and manager of the Surviving Corporation shall be fully authorized, and shall use their and its commercially reasonable efforts (in the name of Q32, in the name of Merger Sub, in the name of the Surviving Corporation and otherwise) to take such action.

2.10 Withholding. Each of the Exchange Agent, Homology and the Surviving Corporation (each, a "**Withholding Agent**") shall be entitled to deduct and withhold from any consideration deliverable pursuant to this Agreement (including the Pre-Closing Distribution) such amounts as are required to be deducted or withheld from such consideration under the Code or under any other applicable Law; provided, however, that if a Withholding Agent determines that any payment in connection with the Contemplated Transactions is subject to deduction and/or withholding, then, except with respect to compensatory payments or as a result of a failure to deliver the certificate described in Section 5.16(b), such Withholding Agent shall use commercially reasonable efforts to (i) provide reasonable advance notice to such recipient of any required deduction or withholding and (ii) reasonably cooperate with such recipient to reduce or eliminate any such deduction and/or withholding. To the extent such amounts are so deducted or withheld, such amounts shall be (i) timely remitted to the appropriate Governmental Authority and (ii) treated for all purposes under this Agreement as having been paid to the Person to whom such amounts would otherwise have been paid.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF Q32

Except as set forth in the written disclosure schedule delivered by Q32 to Homology (the "**Q32 Disclosure Schedule**"), Q32 represents and warrants to Homology and Merger Sub as follows:

3.1 Due Organization; Subsidiaries.

(a) Q32 is a corporation or other legal entity duly incorporated or otherwise organized, validly existing and in good standing under the Laws of the jurisdiction of its incorporation or organization and has all necessary power and authority: (i) to conduct its business in the manner in which its business is currently being conducted, (ii) to own or lease and use its property and assets in the manner in which its property and assets are currently owned or leased and used and (iii) to perform its obligations under all Contracts by which it is bound.

(b) Each of Q32 and its Subsidiaries is licensed and qualified to do business, and is in good standing (to the extent applicable in such jurisdiction), under the Laws of all jurisdictions where the nature of its business in the manner in which its business is currently being conducted requires such licensing or qualification other than in jurisdictions where the failure to be so qualified individually or in the aggregate would not be reasonably expected to have a Q32 Material Adverse Effect.

(c) Except as set forth on Section 3.1(c) of the Q32 Disclosure Schedule, Q32 has no Subsidiaries and Q32 does not directly or indirectly own any capital stock of, or any equity ownership or profit sharing interest of any nature in, or control directly or indirectly, any other Entity. Q32 is not and has not otherwise been, directly or indirectly, a party to, member of or participant in any partnership, joint venture or similar business entity. Q32

has not agreed and is not obligated to make, or is bound by any Contract under which it may become obligated to make, any future investment in or capital contribution to any other Entity. Q32 has not, at any time, been a general partner of, and has not otherwise been liable for any of the debts or other obligations of, any general partnership, limited partnership or other Entity.

3.2 Organizational Documents. Q32 has delivered to Homology accurate and complete copies of Q32's Organizational Documents. Q32 is not in breach or violation of its Organizational Documents in any material respect.

3.3 Authority; Binding Nature of Agreement. Q32 has all necessary corporate power and authority to enter into and to perform its obligations under this Agreement and to consummate the Contemplated Transactions. The Q32 Board (at meetings duly called and held) has (i) determined that the Contemplated Transactions are fair to, advisable and in the best interests of Q32 and its stockholders, (ii) approved and declared advisable this Agreement and the Contemplated Transactions and (iii) determined to recommend the Q32 Board Recommendation to the stockholders of Q32. This Agreement has been duly executed and delivered by Q32 and assuming the due authorization, execution and delivery by Homology and Merger Sub, constitutes the legal, valid and binding obligation of Q32, enforceable against Q32 in accordance with its terms, subject to the Enforceability Exceptions.

3.4 Vote Required. The affirmative vote of the holders of at least (i) a majority of the then outstanding shares of Q32 Common Stock outstanding on the record date for the Q32 Stockholder Written Consent and (ii) a majority of the then outstanding shares of Q32 Preferred Stock voting as a single class on an as-converted basis (together, the "**Required Q32 Stockholder Vote**"), is the only vote of the holders of any class or series of Q32 Capital Stock necessary to adopt and approve this Agreement and approve the Contemplated Transactions. No interest in Q32 is subject to any appraisal or dissenters rights in connection with the Contemplated Transactions.

3.5 Non-Contravention; Consents.

(a) Subject to obtaining the Required Q32 Stockholder Vote and the filing of the Certificate of Merger required by Delaware Law, neither (x) the execution, delivery or performance of this Agreement by Q32, nor (y) the consummation of the Contemplated Transactions, will directly or indirectly (with or without notice or lapse of time):

(i) contravene, conflict with or result in a violation of any of the provisions of the Organizational Documents of Q32 or its Subsidiaries;

(ii) contravene, conflict with or result in a material violation of, or give any Governmental Authority or other Person the right to challenge the Contemplated Transactions or to exercise any remedy or obtain any relief under, any Law or any Order to which Q32 or its Subsidiaries, or any of the assets owned or used by Q32 or its Subsidiaries, is subject;

(iii) contravene, conflict with or result in a material violation of any of the terms or requirements of, or give any Governmental Authority the right to revoke, withdraw, suspend, cancel, terminate or modify, any Governmental Authorization that is held by Q32 or its Subsidiaries or that otherwise relates to the business of Q32, or any of the assets owned, leased or used by Q32;

(iv) contravene, conflict with or result in a violation or breach of, or result in a default under, any provision of any Q32 Material Contract, or give any Person the right to: (A) declare a default or exercise any remedy under any Q32 Material Contract, (B) any material payment, rebate, chargeback, penalty or change in delivery schedule under any such Q32 Material Contract, (C) accelerate the maturity or performance of any Q32 Material Contract or (D) cancel, terminate or modify any term of any Q32 Material Contract, except in the case of any nonmaterial breach, default, penalty or modification; or

(v) result in the imposition or creation of any Encumbrance upon or with respect to any asset owned or used by Q32 or its Subsidiaries (except for Permitted Encumbrances).

(b) Except for (i) any Consent set forth on Section 3.5 of the Q32 Disclosure Schedule under any Q32 Contract, (ii) the Required Q32 Stockholder Vote, (iii) the filing of the Certificate of Merger with the Secretary of State of the State of Delaware pursuant to Delaware Law and (iv) such consents, waivers, approvals, orders, authorizations, registrations, declarations and filings as may be required under applicable federal and state securities laws, neither Q32 nor any of its Subsidiaries was, is or will be required to make any filing with or give any notice to, or to obtain any Consent from, any Person in connection with (x) the execution, delivery or performance of this Agreement or (y) the consummation of the Contemplated Transactions.

(c) The Q32 Board has taken and will take all actions necessary to ensure that the restrictions applicable to business combinations contained in Section 203 of Delaware Law are, and will be, inapplicable to the execution, delivery and performance of this Agreement and to the consummation of the Contemplated Transactions. No other state takeover statute or similar Law applies or purports to apply to the Merger, this Agreement or any of the other Contemplated Transactions.

3.6 Capitalization.

(a) The authorized capital stock of Q32 consists of (i) 141,900,000 shares of Q32 Common Stock of which 7,274,482 shares have been issued and are outstanding as of November 12, 2023 , and (ii) 117,933,356 shares of Q32 Preferred Stock of which (a) 6,500,000 shares have been designated Q32 Series A1 Preferred Stock of which 6,500,000 shares have been issued and are outstanding as of November 12, 2023, (b) 47,628,788 shares have been designated Q32 Series A Preferred Stock of which 47,628,788 shares have been issued and are outstanding as of November 12, 2023 and (d) 63,804,568 shares have been designated Q32 Series B Preferred Stock of which 54,689,627 shares have been issued and are outstanding as of November 12, 2023. Q32 does not hold any shares of its capital stock in its treasury.

(b) All of the outstanding shares of Q32 Common Stock have been duly authorized and validly issued, and are fully paid and nonassessable and are free of any Encumbrances other than under applicable securities Laws. None of the outstanding shares of Q32 Common Stock is entitled or subject to any preemptive right, right of participation, right of maintenance or any similar right. None of the outstanding shares of Q32 Common Stock is subject to any right of first refusal in favor of Q32. Except as contemplated herein, there is no Q32 Contract relating to the voting or registration of, or restricting any Person from purchasing, selling, pledging or otherwise disposing of (or granting any option or similar right with respect to), any shares of Q32 Common Stock. Q32 is not under any obligation, nor is Q32 bound by any Contract pursuant to which it may become obligated, to repurchase, redeem or otherwise acquire any outstanding shares of Q32 Common Stock or other securities. Section (b) of the Q32 Disclosure Schedule accurately and completely describes all repurchase rights held by Q32 with respect to shares of Q32 Common Stock (including shares issued pursuant to the exercise of stock options) and specifies which of those repurchase rights are currently exercisable.

(c) Except for the Q32 Equity Plan and the Q32 Options granted thereunder, Q32 does not have any stock incentive plan or any other plan, program, agreement or arrangement providing for any equity or equity-based compensation for any Person and there were no other equity or equity-based awards outstanding as of the date of this Agreement. As of the date of this Agreement, Q32 has reserved 25,956,535 shares of Q32 Common Stock for issuance under the Q32 Equity Plan, of which 24,450,104 shares have been issued and are outstanding pursuant to the exercise of Q32 Options, 24,336,980 shares are subject to outstanding Q32 Options, and 97,505 shares remain available for future grant pursuant to the Q32 Equity Plan. Section 3.6(c) of the Q32 Disclosure Schedule sets forth a true and complete list, as of the date of this Agreement, of each outstanding Q32 Option, including: (i) the name of the holder, (ii) the number of shares of Q32 Common Stock subject to such Q32 Option, (iii) the exercise price of each Q32 Option, (iv) the date on which such Q32 Option, (v) the applicable vesting schedule, including any acceleration provisions, and the number of vested and unvested shares, (vi) the expiration date, as applicable, and (vii) whether the Q32 Option is intended to be an “incentive stock option” (as defined in the Code) or a non-qualified stock option. Q32 has made available to Homology accurate and complete copies of the following: (A) the standard form of agreement evidencing Q32 Options; and (B) each

agreement evidencing a Q32 Option that does not conform in all material respects to the standard form agreement.

(d) Except as set forth on Section 3.6(c) of the Q32 Disclosure Schedule, there is no: (i) outstanding subscription, option, call, warrant or right (whether or not currently exercisable) to acquire any shares of the capital stock or other securities of Q32, (ii) outstanding security, instrument or obligation that is or may become convertible into or exchangeable for any shares of the capital stock or other securities of Q32, (iii) stockholder rights plan (or similar plan commonly referred to as a "poison pill") or Contract under which Q32 is or may become obligated to sell or otherwise issue any shares of its capital stock or any other securities or (iv) condition or circumstance that may give rise to or provide a basis for the assertion of a claim by any Person to the effect that such Person is entitled to acquire or receive any shares of capital stock or other securities of Q32.

(e) All outstanding shares of Q32 Common Stock, and other securities of Q32 have been issued and granted in compliance with (i) all applicable securities laws and other applicable Law and (ii) all requirements set forth in applicable Contracts.

3.7 Financial Statements.

(a) Section 3.7(a) of the Q32 Disclosure Schedule includes true and complete copies of (i) the Q32 Balance Sheet and the related audited estimated statement of income, cash flow and changes in partners' capital for the years ended December 31, 2021 and December 31, 2022 (the "**Q32 Audited Financial Statements**"), and (ii) Q32's unaudited balance sheet and the related unaudited estimated statement of income, cash flow and changes in partners' capital for the three and six (6) months ended June 30, 2023 (the "**Q32 Interim Financial Statements**" and collectively, with the Q32 Audited Financial Statements, the "**Q32 Financial Statements**").

(b) The Q32 Financial Statements (i) were prepared in accordance with GAAP (except the Q32 Interim Financial Statements and are subject to normal and recurring year-end adjustments that are not reasonably expected to be material in amount) applied on a consistent basis unless otherwise noted therein throughout the periods indicated, (ii) fairly present, in all material respects, the financial position of Q32 as of the respective dates thereof and the results of operations and cash flows of Q32 for the periods covered thereby and (iii) when delivered by Q32 for inclusion in the Registration Statement (as defined below) for filing with the SEC following the date of this Agreement in accordance with Section 5.7, shall comply in all material respects with the applicable accounting requirements and with the rules and regulations of the SEC, the Exchange Act and the Securities Act applicable to a registrant, in effect as of the respective dates thereof. Other than as expressly disclosed in the Q32 Financial Statements, there has been no material change in Q32's accounting methods or principles that would be required to be disclosed in Q32's financial statements in accordance with GAAP. The books of account and other financial records of Q32 and each of its Subsidiaries are true and complete in all material respects.

(c) There have been no formal internal investigations regarding financial reporting or accounting policies and practices discussed with, reviewed by or initiated at the direction of the chief executive officer, chief financial officer, or general counsel of Q32, the Q32 Board or any committee thereof, other than ordinary course audits or reviews of accounting policies and practices or internal controls.

(d) Q32 and its Subsidiaries maintains a system of internal accounting controls designed to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of the financial statements of Q32 and its Subsidiaries in conformity with GAAP and to maintain accountability of the Company's and its Subsidiaries' assets, (iii) access to Q32's and its Subsidiaries' assets is permitted only in accordance with management's general or specific authorization and (iv) the recorded accountability for Q32 and its Subsidiaries' assets is compared with the existing assets at regular intervals and appropriate action is taken with respect to any differences. Q32 and each of its Subsidiaries maintains internal control over financial reporting that provides

reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

(e) Q32's auditor has at all times since the date of enactment of the Sarbanes-Oxley Act been: (i) a registered public accounting firm (as defined in Section 2(a)(12) of the Sarbanes-Oxley Act), (ii) to the Knowledge of Q32, "independent" with respect to Q32 within the meaning of Regulation S-X under the Exchange Act and (iii) to the Knowledge of Q32, in compliance with subsections (g) through (l) of Section 10A of the Exchange Act and the rules and regulations promulgated by the SEC and the Public Company Accounting Oversight Board ("**PCAOB**") thereunder (such firm, the "**PCAOB Auditor**").

3.8 Absence of Changes. Except as set forth on Section 3.8 of the Q32 Disclosure Schedule, since January 1, 2022, Q32 and its Subsidiaries have conducted their business only in the Ordinary Course of Business (except for the execution and performance of this Agreement and the discussions, negotiations and transactions related thereto) and there has not been any (a) Q32 Material Adverse Effect or (b) action, event or occurrence that would have required consent of Homology pursuant to Section 5.1 of this Agreement had such action, event or occurrence taken place after the execution and delivery of this Agreement.

3.9 Absence of Undisclosed Liabilities. Neither Q32 nor any of its Subsidiaries has any liability, indebtedness, obligation, expense, claim, deficiency, guaranty or endorsement of any kind, whether accrued, absolute, contingent, matured, unmatured or otherwise (each a "**Liability**"), in each case, of a type required to be reflected or reserved for on a balance sheet prepared in accordance with GAAP, except for: (a) Liabilities disclosed, reflected or reserved against in the Q32 Balance Sheet, (b) normal and recurring current Liabilities that have been incurred by Q32 or its Subsidiaries since the date of the Q32 Balance Sheet in the Ordinary Course of Business (none of which relates to any breach of contract, breach of warranty, tort, infringement, or violation of Law), (c) Liabilities for performance of obligations of Q32 or any of its Subsidiaries under Q32 Contracts, (d) Liabilities incurred in connection with the Contemplated Transactions and (e) Liabilities described in Section 3.9 of the Q32 Disclosure Schedule.

3.10 Title to Assets. Each of Q32 and its Subsidiaries has good and valid title to, or, in the case of leased properties and assets, valid leasehold interests in, all tangible properties or tangible assets and equipment used or held for use in its business or operations or purported to be owned by it, including: (a) all tangible assets reflected on the Q32 Balance Sheet and (b) all other tangible assets reflected in the books and records of Q32 as being owned by Q32. All of such assets are owned or, in the case of leased assets, leased by Q32 or any of its Subsidiaries free and clear of any Encumbrances, other than Permitted Encumbrances.

3.11 Real Property; Leasehold. Neither Q32 nor any of its Subsidiaries owns or has ever owned any real property. Q32 has made available to Homology (a) an accurate and complete list of all real properties with respect to which Q32 directly or indirectly holds a valid leasehold interest as well as any other real estate that is in the possession of or leased by Q32 or any of its Subsidiaries and (b) copies of all leases under which any such real property is possessed (the "**Q32 Real Estate Leases**"), each of which is in full force and effect, with no existing material default thereunder.

3.12 Intellectual Property.

(a) Section 3.12(a) of the Q32 Disclosure Schedule is an accurate, true and complete listing of all Q32 Registered IP, including for each item (i) the record owner (and name of any other Person with an ownership interest in such item of Q32 Registered IP, if any), jurisdiction (or, with respect to domain names, the applicable registrar), status, date and registration or application number of each item, as applicable, (ii) the name of the record owner and any other Person that has an ownership interest in such item of Q32 Registered IP, and the nature of such ownership interest, and (iii) any actions that are required to be taken within 180 days of the date hereof for any Q32 Registered IP, including the payment of any registration, maintenance or renewal fees or the filing of or response to any documents, applications or certificates, for the purposes of prosecuting, obtaining,

perfecting, maintaining or renewing any Q32 Registered IP. Section 3.12(a) of the Q32 Disclosure Schedule also sets forth, as of the date of this Agreement, a list of all internet domain names with respect to which Q32 or any of its Subsidiaries are the registrant and, with respect to each domain name, the record owner of such domain name and if different, the legal and beneficial owner(s) of such domain name and the applicable domain name registrar.

(b) Section 3.12(b) of the Q32 Disclosure Schedule accurately identifies all Q32 Contracts pursuant to which any material Q32 IP Rights are licensed to Q32 (other than (A) any non-customized software that (1) is so licensed solely in executable or object code form pursuant to a nonexclusive, internal use software license and other Intellectual Property associated with such software and (2) is not incorporated into, or material to the development, manufacturing, or distribution of, any of Q32's or its Subsidiaries' products or services, (B) any Intellectual Property licensed on a nonexclusive basis ancillary to the purchase or use of equipment, reagents or other materials, (C) any confidential information provided under confidentiality agreements and (D) agreements between Q32 or its Subsidiaries and their respective employees in Q32's standard form thereof). To the Knowledge of Q32, each Q32 Contract listed in Section 3.12(b) of the Q32 Disclosure Schedule is in full force and effect and constitutes a legal, valid, and binding obligation of Q32, its Subsidiaries and each other party thereto, and is enforceable against Q32, its Subsidiaries and each other party thereto in accordance with its terms. To the Knowledge of Q32, neither Q32, its Subsidiaries, nor any other party to any Q32 Contract listed in Section 3.12(b) of the Q32 Disclosure Schedule has been or is, or has been or is alleged to be, in material default under, or has provided or received any notice of breach under, or intention to terminate (including by non-renewal), any Q32 Contract listed in Section 3.12(b) of the Q32 Disclosure Schedule, except as would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect.

(c) Except for instances that would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect, Section 3.12(c) of the Q32 Disclosure Schedule accurately identifies each Q32 Contract pursuant to which any Person has been granted any license under, or otherwise has received or acquired any right (whether or not currently exercisable) or interest in, any Q32 IP Rights (other than (i) any confidential information provided under confidentiality agreements and (ii) any Q32 IP Rights nonexclusively licensed to academic collaborators, suppliers or service providers for the sole purpose of enabling such academic collaborator, supplier or service providers to provide services for Q32's or its Subsidiaries' benefit). To the Knowledge of Q32, each Q32 Contract listed in Section 3.12(c) of the Q32 Disclosure Schedule is in full force and effect and constitutes a legal, valid, and binding obligation of Q32, its Subsidiaries and each other party thereto, and is enforceable against Q32, its Subsidiaries and each other party thereto in accordance with its terms. Neither Q32, its Subsidiaries nor, to the Knowledge of Q32, any other party to any Q32 Contract listed in Section 3.12(c) of the Q32 Disclosure Schedule has provided or received any written notice or allegation of breach under, or intention to terminate (including by non-renewal), any Q32 Contract listed in Section 3.12(c) of the Q32 Disclosure Schedule.

(d) Except as identified on Section 3.12(d) of the Q32 Disclosure Schedule, neither Q32 nor any of its Subsidiaries is bound by, no Q32 Owned IP Rights are subject to, and to the Knowledge of Q32, no Q32 Licensed IP Rights are subject to (other than the rights of the applicable licensors), any Contract containing any covenant or other provision that in any way limits or restricts the ability of Q32 or any of its Subsidiaries to use, exploit, assert, or enforce any Q32 IP Rights anywhere in the world, except as would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect.

(e) Q32 or one of its Subsidiaries exclusively owns all right, title, and interest to and in the Q32 IP Rights (other than (i) Q32 Licensed IP Rights, or co-owned rights each as identified in Section 3.12(b) of the Q32 Disclosure Schedule, (ii) any non-customized software that (A) is licensed to Q32 or its Subsidiaries solely in executable or object code form pursuant to a nonexclusive, internal use software license and other Intellectual Property associated with such software and (B) is not incorporated into, or material to the development, manufacturing, or distribution of, any of Q32's or its Subsidiaries' products or services and (iii) any Intellectual Property licensed on a nonexclusive basis ancillary to the purchase or use of equipment, reagents or other materials), in each case, free and clear of any Encumbrances (other than Permitted Encumbrances).

(f) To the Knowledge of Q32, (i) all documents and instruments necessary to register or apply for or renew registration of Q32 Registered IP owned by Q32, and (ii) all documents and instruments necessary to register or apply for or renew registration of Q32 Registered IP exclusively licensed to Q32, have been validly executed, delivered, and filed in a timely manner with the appropriate Governmental Authority. To the Knowledge of Q32, (i) Q32 has filed all statements of use and paid all renewal and maintenance fees, annuities and other fees with respect to the Q32 Registered IP owned by Q32 and (ii) Q32 has executed all documents and instruments necessary to register or apply for or renew registration of Q32 Registered IP exclusively licensed to Q32, in each case (i) and (ii), that are due and payable as of the date of this Agreement.

(g) Except for instances that would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect, to the Knowledge of Q32 each Person who is or was an employee, contractor or consultant of Q32 or any of its Subsidiaries and who is or was involved in the creation, discovery, reduction to practice or development of any Intellectual Property for Q32 or any of its Subsidiaries has signed a valid, enforceable written agreement containing a present assignment of all right, title and interest in and to such Intellectual Property to Q32 or such Subsidiary and confidentiality provisions protecting trade secrets and confidential information of Q32 and its Subsidiaries.

(h) To the Knowledge of Q32, no current or former member, officer, director, or employee of Q32 or any of its Subsidiaries has any claim, right (whether or not currently exercisable), or interest to or in any Q32 IP Rights purported to be owned by Q32. To the Knowledge of Q32, no employee of Q32 or any of its Subsidiaries is (A) bound by or otherwise subject to any Contract restricting him or her from performing his or her duties for Q32 or such Subsidiary or (B) in breach of any Contract with any former employer or other Person concerning Q32 IP Rights purported to be owned by Q32 or such Subsidiary or confidentiality provisions protecting trade secrets and confidential information comprising Q32 IP Rights purported to be owned by Q32 or such Subsidiary.

(i) Except as set forth on Section 3.12(i) of the Q32 Disclosure Schedule, no funding, facilities, or personnel of any Governmental Authority were used, directly or indirectly, to develop or create, in whole or in part, any Q32 Owned IP Rights, or, to the Knowledge of Q32, any Q32 Licensed IP Rights, and no educational institution has any right to, or right to royalties for, or to impose any requirement on the manufacture or commercialization of any product incorporating, any Q32 Owned IP Rights, or, to the Knowledge of Q32, any Q32 Licensed IP Rights. To the Knowledge of Q32, no Governmental Authority has any right to (including any “step-in” or “march-in” rights with respect to), ownership of, commercialization of, or right to royalties or other payments for any Q32 Owned IP Rights, or, to the Knowledge of Q32, any Q32 Licensed IP Rights. Without limiting the generality of the foregoing, to the Knowledge of Q32, no invention claimed or covered by any Patent within the Q32 Owned IP Rights, or, to the Knowledge of Q32, any Q32 Licensed IP Rights, (A) was conceived or reduced to practice in connection with any research activities funded, in whole or in part, by the federal government of the United States or any agency thereof, (B) is a “subject invention” as that term is described in 35 U.S.C. Section 201(e), or (C) is otherwise subject to the provisions of the Bayh-Dole Act or any similar Law of any other jurisdiction, including with respect to any Patents that are part of the Q32 IP Rights.

(j) Q32 and each of its Subsidiaries has taken reasonable steps to maintain the confidentiality of and otherwise protect, maintain and enforce its rights in all proprietary information that Q32 or such Subsidiary holds, or purports to hold, as confidential or a trade secret. To the Knowledge of Q32, neither Q32 nor any of its Subsidiaries has made any of its trade secrets or other material confidential or proprietary information that it intended to maintain as confidential information available to any other Person except pursuant to written agreements requiring such Person to maintain the confidentiality of such trade secrets or confidential information. To the Knowledge of Q32, there have been no material security breaches, outages, violations or unauthorized access to any of the proprietary information that Q32 or any of its Subsidiaries holds, or purports to hold, as confidential or a trade secret, except as would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect.

(k) Except as set forth on Section 3.12(k) of the Q32 Disclosure Schedule, neither Q32 nor any of its Subsidiaries has assigned or otherwise transferred ownership of, or agreed to assign or otherwise transfer ownership of, any Q32 IP Rights to any other Person.

(l) To the Knowledge of Q32, neither Q32 nor any of its Subsidiaries has taken or failed to take any action that could be reasonably expected to result in the abandonment, invalidity, cancellation, forfeiture, relinquishing, invalidation or unenforceability of any Q32 IP Rights (including with respect to any trademark, a failure to exercise adequate quality controls or an assignment in gross without the accompanying goodwill). To the Knowledge of Q32, each item of Q32 IP Right has been duly maintained and is not expired, abandoned or cancelled. To the Knowledge of Q32, each of the Patents included in the Q32 IP Rights identifies each and every inventor of the claims thereof as determined in accordance with the applicable laws of the jurisdiction in which such Patent is issued or pending. To the Knowledge of Q32, neither Q32 nor any of its Subsidiaries has engaged in patent or copyright misuse or any fraud or inequitable conduct in connection with any Q32 IP Right. To the Knowledge of Q32, each of Q32 and its Subsidiaries and their respective patent counsel have complied with its duty of candor and disclosure and have made no material misrepresentations in the filings submitted to the applicable Governmental Authorities with respect to all Patents included in the Q32 IP Rights for which Q32 or any of its Subsidiaries is responsible for prosecuting.

(m) To the Knowledge of Q32, the Q32 IP Rights constitute all Intellectual Property necessary for Q32 to conduct its business as currently conducted or proposed to be conducted; provided, however, that the foregoing representation is not a representation with respect to non-infringement of Intellectual Property.

(n) Q32 has delivered, or made available to Homology, a complete and accurate copy of all material Q32 IP Rights Agreements.

(o) To the Knowledge of Q32, the manufacture, marketing, offering for sale, sale, importation, use or intended use or other disposal of any product as currently sold or under development by Q32 does not violate any license or agreement between Q32 or its Subsidiaries and any third party in any material respect, and, to the Knowledge of Q32, does not infringe or misappropriate any valid and issued Patent or other Intellectual Property of any other Person, which infringement or misappropriation would reasonably be expected to have a Q32 Material Adverse Effect. To the Knowledge of Q32, no third party is infringing upon any Patents owned by Q32 within the Q32 IP Rights, or otherwise violating any Q32 IP Rights Agreement.

(p) Except as set forth on Section 3.12(p) of the Q32 Disclosure Schedule, as of the date of this Agreement, neither Q32 nor any of its Subsidiaries is a party to any Legal Proceeding (including, but not limited to, opposition, interference or other proceeding in any patent or other government office) contesting the validity, ownership or right to use, sell, offer for sale, license or dispose of any Q32 IP Rights. None of the Q32 Owned IP Rights, and to the Knowledge of Q32, none of the Q32 Licensed IP rights, have been adjudged invalid or unenforceable in whole or part, and all Q32 Owned IP Rights, and to the Knowledge of Q32, all Q32 Licensed IP rights, are in full force and effect. No Patents within the Q32 Registered IP owned by Q32, or to the Knowledge of Q32, no Patents within the Q32 Registered IP exclusively licensed to Q32, have been subject to any interference, derivation, reexamination (including ex parte reexamination, inter partes reexamination, inter partes review, or post grant review), reissue, cancellation, opposition, claim, allegation or other action, including any proceeding in which the scope, validity, inventorship, ownership or enforceability of any such Patent is being, has been, or could reasonably be expected to be, contested or challenged. Neither Q32 nor any of its Subsidiaries have received any written notice asserting that any Q32 IP Rights or the proposed use, sale, offer for sale, license or disposition of products, methods, or processes claimed or covered thereunder infringes or misappropriates or violates the rights of any other Person or that Q32 or any of its Subsidiaries have otherwise infringed, misappropriated or otherwise violated any Intellectual Property of any Person.

(q) Except as set forth on Section 3.12(q) of the Q32 Disclosure Schedule, to the Knowledge of Q32, no trademark (whether registered or unregistered) or trade name owned, used, or applied for by Q32 conflicts or

interferes with any trademark (whether registered or unregistered) or trade name owned, used, or applied for by any other Person except as would not have a Q32 Material Adverse Effect. To the Knowledge of Q32, none of the goodwill associated with or inherent in any trademark (whether registered or unregistered) in which Q32 or its Subsidiaries has or purports to have an ownership interest has been impaired as determined by Q32 in accordance with GAAP. Section 3.12(q) of the Q32 Disclosure Schedule sets forth all material unregistered trademarks included in the Q32 IP Rights.

(r) Except (i) as would reasonably not be expected to have a Q32 Material Adverse Effect, (ii) as may be set forth in Sections 3.12(a) or 3.12(b) of the Q32 Disclosure Schedule or (iii) as contained in license, distribution or service agreements entered into in the Ordinary Course of Business by Q32, to the Knowledge of Q32, (A) neither Q32 nor any of its Subsidiaries is bound by any Contract to indemnify, defend, hold harmless, or reimburse any other Person with respect to any Intellectual Property infringement, misappropriation, or similar claim which is material to Q32 or any of its Subsidiaries, taken as a whole and (B) neither Q32 nor any of its Subsidiaries has ever assumed, or agreed to discharge or otherwise take responsibility for, any existing or potential liability of another Person for infringement, misappropriation, or violation of any Intellectual Property right, which assumption, agreement or responsibility remains in force as of the date of this Agreement.

(s) To the Knowledge of Q32, neither Q32 nor any of its Subsidiaries is party to any Contract that, as a result of such execution, delivery and performance of this Agreement, will (i) cause the grant, assignment, or transfer to any other third party of any license or other right to or in any Q32 IP Rights, (ii) result in breach of, default under, termination of, or acceleration or modification of such Contract with respect to any Q32 IP Rights, (iii) alter, encumber, impair or extinguish, or result in any Encumbrance with respect to the right of Q32 or the Surviving Corporation and its Subsidiaries to use, sell or license or enforce any Q32 IP Rights or portion thereof, or (iv) result in Q32 or any of its Subsidiaries being bound by or subject to any exclusivity obligations, non-compete or other restrictions on the operation or scope of their respective businesses, or to any obligation to grant any rights in or to any Q32 IP Rights, except, in each of (i), (ii), (iii) and (iv), for the occurrence of any such grant or impairment that would not individually or in the aggregate, reasonably be expected to result in a Q32 Material Adverse Effect.

3.13 Agreements, Contracts and Commitments.

(a) Section 3.13(a) of the Q32 Disclosure Schedule lists the following Q32 Contracts in effect as of the date of this Agreement (each, a "**Q32 Material Contract**" and collectively, the "**Q32 Material Contracts**"):

(i) each Q32 Contract that is a collective bargaining agreement or other agreement or arrangement with any labor union, works council or labor organization;

(ii) each Q32 Contract for the employment or engagement of any individual on an employee, consulting or other basis that provides for annual base compensation in excess of $200,000;

(iii) each Q32 Contract with any Q32 Associate that provides for retention, change in control, transaction or other similar payments or benefits, whether or not payable as a result of the Contemplated Transactions;

(iv) each Q32 Contract relating to any agreement of indemnification or guaranty not entered into in the Ordinary Course of Business;

(v) each Q32 Contract containing (A) any covenant limiting the freedom of Q32 or any of its Subsidiaries or the Surviving Corporation to engage in any line of business or compete with any Person, or limiting the development, manufacture, or distribution of Q32's products or services, (B) any most-favored pricing arrangement, (C) any exclusivity provision or (D) any non-solicitation provision;

(vi) each Q32 Contract (A) pursuant to which any Person granted Q32 an exclusive license under any Intellectual Property, or (B) pursuant to which Q32 granted any Person an exclusive license under any Q32 IP Rights;

(vii) each Q32 Contract relating to capital expenditures and requiring payments after the date of this Agreement in excess of $500,000 pursuant to its express terms and not cancelable without penalty;

(viii) each Q32 Contract relating to the disposition or acquisition of material assets or any ownership interest in any Entity, in each case, involving payments in excess of $250,000 after the date of this Agreement;

(ix) each Q32 Contract relating to any mortgages, indentures, loans, notes or credit agreements, security agreements or other agreements or instruments relating to the borrowing of money or extension of credit in excess of $500,000 or creating any material Encumbrances with respect to any assets of Q32 or any loans or debt obligations with officers or directors of Q32;

(x) each Q32 Contract requiring payment by or to Q32 after the date of this Agreement in excess of $500,000 pursuant to its express terms relating to: (A) any distribution agreement (identifying any that contain exclusivity provisions), (B) any agreement involving provision of services or products with respect to any pre-clinical or clinical development activities of Q32, (C) any dealer, distributor, joint marketing, alliance, joint venture, cooperation, development or other agreement currently in force under which Q32 or any of its Subsidiaries has continuing obligations to develop or market any product, technology or service, or any agreement pursuant to which Q32 or any of its Subsidiaries has continuing obligations to develop any Intellectual Property that will not be owned, in whole or in part, by Q32 or such Subsidiary or (D) any Contract to license any Patent, trademark registration, service mark registration, trade name or copyright registration to or from any third party to manufacture or produce any product, service or technology of Q32 or any of its Subsidiaries or any Contract to sell, distribute or commercialize any products or service of Q32 or any of its Subsidiaries, in each case, except for Q32 Contracts entered into in the Ordinary Course of Business;

(xi) each Q32 Contract with any Person, including any financial advisor, broker, finder, investment banker or other Person, providing advisory services to Q32 in connection with the Contemplated Transactions;

(xii) each Q32 Contract to which Q32 or any of its Subsidiaries is a party or by which any of their assets and properties is currently bound, which involves annual obligations of payment by, or annual payments to, Q32 or such Subsidiary in excess of $500,000;

(xiii) a Q32 Real Estate Lease;

(xiv) a Contract disclosed in or required to be disclosed in Section 3.12(a) or Section 3.12(b) of the Q32 Disclosure Schedule; or

(xv) any other Q32 Contract that is not terminable at will (with no penalty or payment) by Q32 or any of its Subsidiaries, and (A) which involves payment or receipt by Q32 or such Subsidiary after the date of this Agreement under any such agreement, contract or commitment of more than $500,000 in the aggregate, or obligations after the date of this Agreement in excess of $1,000,000 in the aggregate or (B) that is material to the business or operations of Q32 and its Subsidiaries taken as a whole.

(b) Q32 has delivered or made available to Homology accurate and complete copies of all Q32 Material Contracts, including all amendments thereto. There are no Q32 Material Contracts that are not in written form. Q32 has not, nor to Q32's Knowledge, as of the date of this Agreement, has any other party to a Q32 Material Contract, breached, violated or defaulted under, or received notice that it breached, violated or defaulted under, any of the terms or conditions of any Q32 Material Contract in such manner as would permit any other party to cancel or terminate any such Q32 Material Contract, or would permit any other party to seek damages which would reasonably be expected to have a Q32 Material Adverse Effect. As to Q32 and its Subsidiaries, as of the date of this Agreement, each Q32 Material Contract is valid, binding, enforceable and in full force and effect, subject to the Enforceability Exceptions. No Person is renegotiating, or has a right pursuant to the terms of any Q32 Material Contract to change, any material amount paid or payable to Q32 under any Q32 Material Contract or any other material term or provision of any Q32 Material Contract.

3.14 Compliance; Permits; Restrictions.

(a) Q32 and each of its Subsidiaries is, and since January 1, 2020 has been, in material compliance with all applicable Laws. No investigation, claim, suit, proceeding, audit, Order, or other action by any Governmental Authority is pending or, to the Knowledge of Q32, threatened against Q32 or any of its Subsidiaries. There is no agreement or Order binding upon Q32 or any of its Subsidiaries which (i) has or could reasonably be expected to have the effect of prohibiting or materially impairing any business practice of Q32 or any of its Subsidiaries, any acquisition of material property by Q32 or any of its Subsidiaries or the conduct of business by Q32 or any of its Subsidiaries as currently conducted, (ii) is reasonably likely to have an adverse effect on Q32's ability to comply with or perform any covenant or obligation under this Agreement or (iii) is reasonably likely to have the effect of preventing, delaying, making illegal or otherwise interfering with the Contemplated Transactions.

(b) Each of Q32 and its Subsidiaries holds all required Governmental Authorizations that are material to the operation of the business of Q32 as currently conducted (collectively, the "**Q32 Permits**"). Section 3.14(b) of the Q32 Disclosure Schedule identifies each Q32 Permit. Each of Q32 and its Subsidiaries is in material compliance with the terms of Q32 Permits. No Legal Proceeding is pending or, to the Knowledge of Q32, threatened, which seeks to revoke, substantially limit, suspend, or materially modify any Q32 Permit.

(c) There are no Legal Proceedings pending or, to the Knowledge of Q32, threatened in writing with respect to an alleged material violation by Q32 or any of its Subsidiaries of the Federal Food, Drug, and Cosmetic Act **(**"**FDCA**")**,** the Public Health Service Act **(**"**PHSA**"), Food and Drug Administration **(**"**FDA**") regulations adopted thereunder, the Controlled Substances Act or any other Law promulgated by the FDA or other Governmental Authority responsible for regulation of the research, development, testing, manufacturing, packaging, processing, storage, labeling, sale, marketing, advertising, distribution and importation or exportation of drug or biologic products **(**"**Drug Regulatory Agency**").

(d) Each of Q32 and its Subsidiaries holds all required material Governmental Authorizations issuable by any Drug Regulatory Agency necessary for the conduct of the business of Q32 as currently conducted, and, as applicable, the research, development, testing, manufacturing, packaging, processing, storage, labeling, sale, marketing, advertising, distribution and importation or exportation, as currently conducted, of any of its product candidates (the "**Q32 Product Candidates**") (collectively, the "**Q32 Regulatory Permits**") and no such Q32 Regulatory Permit has been (i) revoked, withdrawn, suspended, cancelled or terminated or (ii) modified in any material, adverse manner. Q32 has timely maintained and is in compliance in all material respects with the Q32 Regulatory Permits and neither Q32 nor any of its Subsidiaries has, since January 1, 2020, received any written notice or other written communication from any Drug Regulatory Agency regarding (A) any material violation of or failure to comply materially with any term or requirement of any Q32 Regulatory Permit or (B) any revocation, withdrawal, suspension, cancellation, termination or material modification of any Q32 Regulatory Permit.

(e) All clinical, pre-clinical and other studies and tests conducted by or on behalf of, or sponsored by, Q32 and its Subsidiaries, in which Q32 Product Candidates, have participated, were and, if still pending, are being conducted in compliance in all material respects with the applicable regulations of the Drug Regulatory Agencies and other applicable Law, including, without limitation, 21 C.F.R. Parts 50, 54, 56, 58 and 312. Neither Q32 nor any of its Subsidiaries has received any written notices, correspondence, or other communications from any Drug Regulatory Agency requiring, or, to the Knowledge of Q32, any action to place a clinical hold order on, or otherwise terminate, delay, or suspend any clinical studies conducted by or on behalf of, or sponsored by, Q32 or any of its Subsidiaries or in which Q32 Product Candidates, have participated.

(f) Neither Q32 nor any of its Subsidiaries, and, to the Knowledge of Q32, any contract manufacturer with respect to any Q32 Product Candidate, is the subject of any pending or, to the Knowledge of Q32, threatened investigation in respect of its business or products by the FDA pursuant to its "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy set forth in 56 Fed. Reg. 46191 (September 10, 1991)

and any amendments thereto, or any other applicable Law. To the Knowledge of Q32, neither Q32 nor any of its Subsidiaries nor any contract manufacturer with respect to any Q32 Product Candidate has committed any acts, made any statement, or failed to make any statement, in each case in respect of Q32's business or products that would violate the FDA's "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy, and any amendments thereto, or any other applicable Law. None of Q32, any of its Subsidiaries, and to the Knowledge of Q32, any contract manufacturer with respect to any Q32 Product Candidate, or any of their respective officers, employees or agents has been convicted of any crime or engaged in any conduct that could result in a debarment or exclusion under (i) 21 U.S.C. Section 335a, (ii) 42 U.S.C. § 1320a-7, or (iii) any other applicable Law. To the Knowledge of Q32, no debarment or exclusionary claims, actions, proceedings or investigations in respect of their business or products are pending or threatened against Q32, any of its Subsidiaries, and to the Knowledge of Q32, any contract manufacturer with respect to any Q32 Product Candidate, or any of its respective officers, employees or agents. Neither Q32 nor any of its Subsidiaries is a party to or has any reporting obligations under any corporate integrity agreements, monitoring agreements, deferred or non-prosecution agreements, consent decrees, settlement orders, or similar agreements with or imposed by any Governmental Authority.

(g) All manufacturing operations conducted by, or to the Knowledge of Q32, for the benefit of, Q32 or its Subsidiaries in connection with any Q32 Product Candidate, since January 1, 2020, have been and are being conducted in compliance in all material respects with applicable Laws, including the FDA's standards for current good manufacturing practices, including applicable requirements contained in 21 C.F.R. Parts 210, 211 and 600-680 and the respective counterparts thereof promulgated by Governmental Authorities in countries outside the United States.

(h) No laboratory or manufacturing site owned by Q32 or its Subsidiaries, and to the Knowledge of Q32, no manufacturing site of a contract manufacturer or laboratory, with respect to any Q32 Product Candidate, (i) is subject to a Drug Regulatory Agency shutdown or import or export prohibition or (ii) has since January 1, 2020 received any unresolved Form FDA 483, notice of violation, warning letter, untitled letter, or similar correspondence or notice from the FDA or other Governmental Authority alleging or asserting material noncompliance with any applicable Law, and, to the Knowledge of Q32, neither the FDA nor any other Governmental Authority is considering such action.

3.15 Legal Proceedings; Orders.

(a) There is no pending Legal Proceeding and, to the Knowledge of Q32, no Person has threatened in writing to commence any Legal Proceeding: (i) that involves Q32 or any of its Subsidiaries or any Q32 Associate (in his or her capacity as such) or any of the material assets owned or used by Q32 or any of its Subsidiaries or (ii) that challenges, or that may have the effect of preventing, delaying, making illegal or otherwise interfering with, the Contemplated Transactions.

(b) There is no Order to which Q32 or any of its Subsidiaries, or any of the material assets owned or used by Q32 or any of its Subsidiaries, is subject. To the Knowledge of Q32, no officer or other Key Employee of Q32 or any of its Subsidiaries is subject to any Order that prohibits such officer or employee from engaging in or continuing any conduct, activity or practice relating to the business of Q32 or any of its Subsidiaries or to any material assets owned or used by Q32 or any of its Subsidiaries.

3.16 Tax Matters.

(a) Each of Q32 and each of its Subsidiaries has timely filed all income Tax Returns and all other material Tax Returns that were required to be filed by or with respect to it under applicable Law. All such Tax Returns were correct and complete in all material respects and have been prepared in material compliance with all applicable Law. Subject to exceptions as would not be material, no claim has ever been made by a Governmental Authority in a jurisdiction where Q32 or any of its Subsidiaries does not file a particular type of Tax Return that

Q32 or any of its Subsidiaries is subject to taxation by that jurisdiction that would require the filing of such a Tax Return.

(b) All material amounts of Taxes due and owing by Q32 and each of its Subsidiaries (whether or not shown on any Tax Return) have been timely paid. The unpaid Taxes of Q32 and each of its Subsidiaries for periods (or portions thereof) ending on or prior to the date of the Q32 Balance Sheet do not materially exceed the accruals for current Taxes set forth on the Q32 Balance Sheet. Since the date of the Q32 Balance Sheet, neither Q32 nor any of its Subsidiaries has incurred any material Liability for Taxes outside the Ordinary Course of Business or otherwise inconsistent with past custom and practice.

(c) Each of Q32 and each of its Subsidiaries has withheld and paid to the appropriate Governmental Authority all material Taxes required to have been withheld and paid in connection with any amounts paid or owing to any employee, independent contractor, creditor, stockholder, or other third party.

(d) There are no Encumbrances for material Taxes (other Encumbrances described in clause (i) of the definition of "Permitted Encumbrances") upon any of the assets of Q32 or any of its Subsidiaries.

(e) No deficiencies for a material amount of Taxes with respect to Q32 or any of its Subsidiaries have been claimed, proposed or assessed by any Governmental Authority in writing that have not been timely paid in full. There are no pending (or, based on written notice, threatened) material audits, assessments, examinations or other actions for or relating to any Liability in respect of Taxes of Q32 or any of its Subsidiaries. Neither Q32 nor any of its Subsidiaries has waived any statute of limitations in respect of material Taxes or agreed to any extension of time with respect to a material Tax assessment or deficiency.

(f) Neither Q32 nor any of its Subsidiaries is a party to any Tax allocation, Tax sharing or similar agreement (including indemnity arrangements), other than customary indemnification provisions in commercial Contracts entered into in the Ordinary Course of Business with vendors, customers, lenders, or landlords (an "**Ordinary Course Agreement**").

(g) Neither Q32 nor any of its Subsidiaries has been a member of an affiliated group filing a consolidated U.S. federal income Tax Return (other than a group the common parent of which is Q32). Neither Q32 nor any of its Subsidiaries has any material Liability for the Taxes of any Person (other than Q32) under Treasury Regulations Section 1.1502-6 (or any similar provision of state, local, or foreign law), as a transferee or successor, or by Contract (other than an Ordinary Course Agreement).

(h) Neither Q32 nor any of its Subsidiaries has distributed stock of another Person, or has had its stock distributed by another Person, in a transaction that was purported or intended to be governed in whole or in part by Section 355 of the Code or Section 361 of the Code.

(i) Neither Q32 nor any of its Subsidiaries has entered into any transaction identified as a "reportable transaction" for purposes of Treasury Regulations Section 1.6011-4(b)(2).

(j) Neither Q32 nor any of its Subsidiaries will be required to include any material item of income or gain in, or exclude any material item of deduction or loss from, taxable income for any taxable period (or portion thereof) ending after the Closing Date as a result of any: (i) change in, or use of improper, method of accounting for a taxable period ending on or prior to the Closing Date; (ii) "closing agreement" as described in Section 7121 of the Code (or any corresponding or similar provision of state, local or foreign income Tax law) executed on or prior to the Closing Date; (iii) installment sale or open transaction disposition made on or prior to the Closing Date; (iv) prepaid amount, advance payments or deferred revenue received or accrued on or prior to the Closing Date; or (v) intercompany transaction or excess loss amount described in Treasury Regulations under Section 1502 of the Code (or any corresponding or similar provision of state, local or foreign income Tax Law).

(k) Section 3.16(k) of the Q32 Disclosure Schedule sets forth the entity classification of Q32 and each of its Subsidiaries for U.S. federal income tax purposes. Neither Q32 nor any of its Subsidiaries has made an election or taken any other action to change its federal and state income tax classification from such classification.

(l) Neither Q32 nor any of its Subsidiaries has taken or knowingly failed to take any action, nor to the Knowledge of Q32, are there any facts or circumstances, in each case, that would reasonably be expected to prevent or impede the Merger from qualifying for the Intended Tax Treatment.

3.17 Employee and Labor Matters; Benefit Plans.

(a) Section 3.17(a) of the Q32 Disclosure Schedule contains a complete and accurate list of all Q32 employees as of the date of this Agreement, setting forth for each employee: job title; classification as exempt or non-exempt for wage and hour purposes; annual base salary, hourly rate or other rates of compensation; bonus potential; full-time or part-time status; date of hire; business location; status (i.e., active or inactive and if inactive, the type of leave and estimated duration); and any visa or work permit status and the date of expiration, if applicable.

(b) Section 3.17(b) of the Q32 Disclosure Schedule contains a complete and accurate list as of the date hereof of all of the independent contractors, consultants, temporary employees, leased employees or other agents employed or used by Q32 and classified by Q32 as other than employees, or compensated other than through wages paid by Q32 through Q32's payroll department ("Q32 Contingent Workers"), showing for each Q32 Contingent Worker such individual's engagement date, role in the business, work location, and fee or compensation arrangements.

(c) Neither Q32 nor any of its Subsidiaries is a party to, bound by the terms of, or has a duty to bargain under, any collective bargaining agreement or other Contract with a labor union, works council or labor organization representing any Q32 Associate, and there are no labor unions, works council or labor organizations representing or, to the Knowledge of Q32, purporting to represent or seeking to represent any Q32 Associates, including through the filing of a petition for representation election.

(d) Section 3.17(d) of the Q32 Disclosure Schedule lists all material Q32 Employee Plans.

(e) As applicable with respect to each material Q32 Employee Plan, Q32 has made available to Homology, true and complete copies of (i) the plan document, including all amendments thereto, and in the case of an unwritten Employee Plan, a written description of all material terms thereof, (ii) all related trust instruments or other funding-related documents and insurance contracts, (iii) the summary plan description and each summary of material modifications thereto, (iv) the financial statements for the most recent year for which such financial statements are available (in audited form, if available or required by ERISA) and, where applicable, annual reports with any Governmental Authority (*e.g.*, Form 5500 and all schedules thereto), (v) the most recent IRS determination or opinion letter, (vi) written results of any required compliance testing for the three most recent plan years, and (vii) all material, non-routine notices, filings or correspondence during the past three years with any Governmental Authority.

(f) Each Q32 Employee Plan that is intended to be qualified under Section 401(a) of the Code has received a favorable determination letter or may rely on a favorable opinion letter with respect to such qualified status from the IRS to the effect that such plan is qualified under Section 401(a) of the Code and the related trust is exempt from federal income Taxes under Section 501(a) of the Code. To the Knowledge of Q32, nothing has occurred that would reasonably be expected to cause the loss of the qualified status of any such Q32 Employee Plan or the Tax exempt status of any related trust.

(g) Each Q32 Employee Plan has been established, maintained and operated in compliance, in all material respects, with its terms and all applicable Laws, including, without limitation, the Code and ERISA. No Legal

Proceeding (other than those relating to routine claims for benefits) is pending or, to the Knowledge of Q32, threatened with respect to any Q32 Employee Plan. All material payments and/or contributions required to have been made with respect to all Q32 Employee Plans have been made in accordance with the terms of the applicable Q32 Employee Plan and applicable Law in all material respects and neither Q32 nor any Q32 ERISA Affiliate has any material Liability for any such unpaid contributions with respect to any Q32 Employee Plan.

(h) Neither Q32, any of its Subsidiaries nor any of their ERISA Affiliates maintains, contributes to or is required to contribute to, or has any Liability with respect to (i) any "employee benefit plan" (within the meaning of Section 3(2) of ERISA) that is or was subject to Title IV or Section 302 of ERISA or Section 412 of the Code, (ii) a Multiemployer Plan, (iii) any Multiple Employer Plan, or (iv) any Multiple Employer Welfare Arrangement.

(i) No Q32 Employee Plan provides for medical or other welfare benefits to any service provider beyond termination of service or retirement, other than (i) pursuant to COBRA or an analogous state law requirement (the full cost of which is borne by such Person or such Person's dependents or beneficiaries) or (ii) continuation coverage through the end of the month in which such termination or retirement occurs.

(j) No Q32 Employee Plan is subject to any law of a foreign jurisdiction outside of the United States.

(k) Each Q32 Employee Plan that constitutes in any part a nonqualified deferred compensation plan within the meaning of Section 409A of the Code has complied in all material respects with Section 409A of the Code, to the extent applicable, and no compensation has been or would reasonably be expected to be includable in the gross income of any Q32 Associate as a result of the operation of Section 409A of the Code.

(l) Q32 and its Subsidiaries are, and since January 1, 2020 have been, in compliance in all material respects with all applicable Laws respecting labor, employment and employment practices, including terms and conditions of employment, worker classification, tax withholding, unemployment compensation, workers' compensation, prohibited discrimination, harassment, equal employment, fair employment practices, meal and rest periods, work authorization and immigration status, employee safety and health, wages (including overtime wages), pay equity, affirmative action, restrictive covenants, compensation, and hours of work. There are no Legal Proceedings pending or, to the Knowledge of Q32, threatened against Q32 or any of its Subsidiaries relating to any labor or employment matters or any Q32 Associate. Q32 is not a party to a conciliation agreement, consent decree or other agreement or Order with any federal, state, or local agency or Governmental Authority with respect to employment practices.

(m) Since January 1, 2020, (i) Q32 has not taken any action which would constitute a "plant closing", "collective dismissal", "group dismissal", "group termination", "mass termination", or "mass layoff" within the meaning of the WARN Act, (ii) issued any written notification of a plant closing or mass layoff required by the WARN Act (nor has Q32 or any of its Subsidiaries has been under any requirement or obligation to issue any such notification), or (iii) incurred any Liability or obligation under the WARN Act that remains unsatisfied.

(n) Since January 1, 2020, there has never been, nor to the Knowledge of Q32 has there been any threat of, any strike, slowdown, work stoppage, lockout, job action, union, organizing activity, question concerning representation or any similar activity or dispute, affecting Q32 or its Subsidiaries. No event has occurred within the past six (6) months, and, to the Knowledge of Q32, no condition or circumstance exists, that would reasonably be expected to give rise to or provide a basis for the commencement of any such strike, slowdown, work stoppage, lockout, job action, union organizing activity, question concerning representation or any similar activity or dispute.

(o) There is no contract, agreement, plan or arrangement to which Q32 or any of its Subsidiaries is a party or by which it is bound to make any payment or compensate any Q32 Associate for Taxes incurred pursuant to the Code, including, but not limited to, Section 4999 or Section 409A of the Code.

(p) Neither the execution and delivery of this Agreement, the shareholder approval of this Agreement, nor the consummation of the Contemplated Transactions (either alone or in conjunction with any other event, including without limitation, a termination of employment) will result in any (i) payment (including severance, forgiveness of indebtedness or otherwise) or benefit becoming due to Q32 Associate, (ii) increase in any benefits or the compensation payable under any Q32 Employee Plan, (iii) acceleration of the time of payment, funding or vesting of any such compensation or benefits or any loan forgiveness, (iv) restriction on the right of Q32 or any of its Subsidiaries or, after the consummation of Contemplated Transactions, the Surviving Corporation, to merge, amend, terminate or transfer any Q32 Employee Plan, or (v) "excess parachute payment" (within the meaning of Section 280G of the Code).

3.18 Environmental Matters. Since January 1, 2020, Q32 and each of its Subsidiaries has complied with all applicable Environmental Laws, which compliance includes the possession by Q32 of all permits and other Governmental Authorizations required under applicable Environmental Laws and compliance with the terms and conditions thereof, except for any failure to be in compliance that, individually or in the aggregate, would not result in a Q32 Material Adverse Effect. Neither Q32 nor any of its Subsidiaries has received since January 1, 2020, any written notice or other communication (in writing or otherwise), whether from a Governmental Authority, citizens group, employee or otherwise, that alleges that Q32 or any of its Subsidiaries is not in compliance with any Environmental law, and, to the Knowledge of Q32, there are no circumstances that may prevent or interfere with Q32's or any of its Subsidiaries' compliance with any Environmental Law in the future, except where such failure to comply would not reasonably be expected to have a Q32 Material Adverse Effect. To the Knowledge of Q32: (a) no current or prior owner of any property leased or controlled by Q32 or any of its Subsidiaries has received since January 1, 2020, any written notice or other communication relating to property owned or leased at any time by Q32 or any of its Subsidiaries, whether from a Governmental Authority, citizens group, employee or otherwise, that alleges that such current or prior owner or Q32 or any of its Subsidiaries is not in compliance with or violated any Environmental Law relating to such property and (b) neither Q32 nor any of its Subsidiaries has any material Liability under any Environmental Law.

3.19 Insurance. Q32 has made available to Homology accurate and complete copies of all material insurance policies and all material self-insurance programs and arrangements relating to the business, assets, liabilities and operations of Q32 and its Subsidiaries. Each of such insurance policies is in full force and effect and Q32 and its Subsidiaries are in compliance in all material respects with the terms thereof. Other than customary end of policy notifications from insurance carriers, since January 1, 2020, neither Q32 nor any of its Subsidiaries has received any notice or other communication regarding any actual or possible: (a) cancellation or invalidation of any insurance policy or (b) refusal or denial of any coverage, reservation of rights or rejection of any material claim under any insurance policy. Each of Q32 and its Subsidiaries has provided timely written notice to the appropriate insurance carrier(s) of each Legal Proceeding pending against Q32 or such Subsidiary for which Q32 or such Subsidiary has insurance coverage, and no such carrier has issued a denial of coverage or a reservation of rights with respect to any such Legal Proceeding, or informed Q32 of its intent to do so.

3.20 Transactions with Affiliates. Section 3.20 of the Q32 Disclosure Schedule describes any material transactions or relationships, since January 1, 2020, between, on one hand, Q32 and, on the other hand, any (a) executive officer or director of Q32 or any of such executive officer's or director's immediate family members, (b) owner of more than five percent of the voting power of the outstanding shares of Q32 Common Stock or (c) to the Knowledge of Q32, any "related person" (within the meaning of Item 404 of Regulation S-K under the Securities Act) of any such officer, director or owner (other than Q32) in the case of each of (a), (b) or (c) that is of the type that would be required to be disclosed under Item 404 of Regulation S-K under the Securities Act.

3.21 No Financial Advisors. Except as set forth on Section 3.20 of the Q32 Disclosure Schedule, no broker, finder or investment banker is entitled to any brokerage fee, finder's fee, opinion fee, success fee, transaction fee or other fee or commission in connection with the Contemplated Transactions based upon arrangements made by or on behalf of Q32.

3.22 Privacy and Data Security.

(a) Q32 and its Subsidiaries have complied with all applicable Privacy Laws and the applicable terms of any Q32 Contracts relating to privacy, security, collection or use of Personal Information of any individuals (including clinical trial participants, patients, patient family members, caregivers or advocates, physicians and other health care professionals, clinical trial investigators, researchers, pharmacists) that interact with Q32 or any of its Subsidiaries in connection with the operation of Q32's and its Subsidiaries' business, except for such noncompliance as has not had, and would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect. To the Knowledge of Q32, Q32 has implemented and maintains reasonable written policies and procedures, satisfying the requirements of applicable Privacy Laws and Q32 Contracts, concerning the privacy, security, collection and use of Personal Information (the "**Q32 Privacy Policies**") and has complied with the same, except for such noncompliance as has not to the Knowledge of Q32 had, and would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect. To the Knowledge of Q32, as of the date hereof, no claims have been asserted or threatened against Q32 by any Person alleging a violation of Privacy Laws, Q32 Privacy Policies and/or the applicable terms of any Q32 Contracts relating to privacy, security, collection or use of Personal Information of any individuals and Q32 has not received written notice of any of the same. To the Knowledge of Q32, there have been no data security incidents, personal data breaches or other adverse events or incidents related to Personal Information or Q32 data in the custody or control of Q32 or any service provider acting on behalf of Q32, in each case where such incident, breach or event would result in a notification obligation to any Person under applicable law or pursuant to the terms of any Q32 Contract.

(b) The information technology assets and equipment of Q32 and its Subsidiaries (collectively, "**Q32 IT Systems**") are adequate for, and operate and perform in all material respects as required in connection with the operation of the business of Q32 and its Subsidiaries as currently conducted, and to the Knowledge of Q32, free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. Q32 and its Subsidiaries have implemented and maintain commercially reasonable physical, technical and administrative safeguards to protect Personal Information processed by or on behalf of Q32 and its Subsidiaries, any other material confidential information and the integrity and security of Q32 IT Systems used in connection with their businesses, and during the past three years, there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or Liability or the duty to notify any other Person.

3.23 Concurrent Financing.

(a) Q32 has delivered to Homology true, correct and complete copies of all definitive agreements related to the Concurrent Financing, including the Subscription Agreement, pursuant to which the Purchasers (as defined in the Subscription Agreement) party thereto (collectively, the "Purchasers") have agreed, subject to the terms and conditions set forth therein, to purchase the number of shares of Q32 Common Stock set forth therein in connection with the transactions contemplated by this Agreement. The Subscription Agreement has not been amended or modified prior to the date of this Agreement and as of the date hereof, no such amendment or modification is contemplated (other than amendments or modifications that are permitted by Section 5.27), and as of the date hereof, the respective obligations and commitments contained in the Subscription Agreement have not been withdrawn or rescinded in any respect.

(b) As of the date hereof, the Subscription Agreement is in full force and effect and is the legal, valid, binding and enforceable obligation of Q32, and, to the Knowledge of Q32, each of the Purchasers. There are no conditions precedent or other contingencies related to the funding of the full amount of the Concurrent Financing, other than as expressly set forth in the Subscription Agreement. As of the date hereof, no event has occurred which, with or without notice, lapse of time or both, would reasonably be expected to constitute a default or breach on the part of Q32 or, to the Knowledge of Q32, any Purchaser under the Subscription Agreement. As of the date hereof, Q32 has no reason to believe that any of the conditions to the Concurrent Financing as contemplated by the Subscription Agreement will not be satisfied.

3.24 No Other Representations or Warranties. Q32 hereby acknowledges and agrees that, except for the representations and warranties contained in this Agreement, neither Homology nor any other person on behalf of Homology makes any express or implied representation or warranty with respect to Homology or with respect to any other information provided to Q32, any of its stockholders or any of their respective Affiliates in connection with the Contemplated Transactions, and (subject to the express representations and warranties of Homology set forth in Article IV (in each case as qualified and limited by the Homology Disclosure Schedule)) none of Q32, or any of its Representatives or stockholders, has relied on any such information (including the accuracy or completeness thereof).

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF HOMOLOGY AND MERGER SUB

Except (i) as set forth in the written disclosure schedule delivered by Homology to Q32 (the "**Homology Disclosure Schedule**") or (ii) as disclosed in the Homology SEC Documents filed with the SEC on or before the day that is one (1) Business Day prior to the date hereof and publicly available on the SEC's Electronic Data Gathering Analysis and Retrieval system (but (A) without giving effect to any amendment thereof filed with, or furnished to the SEC on or after the date hereof and (B) excluding any disclosures contained under the heading "Risk Factors" and any disclosure of risks included in any "forward-looking statements" disclaimer or in any other section to the extent they are forward-looking statements or cautionary, predictive or forward-looking in nature), it being understood that any matter disclosed in the Homology SEC Documents shall not be deemed disclosed for purposes of Section 4.1(a), 4.1(b) or 4.3, Homology and Merger Sub represent and warrant to Q32 as follows:

4.1 Due Organization; Subsidiaries.

(a) Each of Homology and its Subsidiaries (including Merger Sub) is a corporation or other legal entity duly incorporated or otherwise organized, validly existing and in good standing under the Laws of the jurisdiction of its incorporation or organization and has all necessary power and authority: (i) to conduct its business in the manner in which its business is currently being conducted, (ii) to own or lease and use its property and assets in the manner in which its property and assets are currently owned or leased and used and (iii) to perform its obligations under all Contracts by which it is bound. Since the date of its formation, Merger Sub has not engaged in any activities other than in connection with or as contemplated by this Agreement. All of Homology's Subsidiaries are wholly owned by Homology.

(b) Each of Homology and its Subsidiaries is licensed and qualified to do business, and is in good standing (to the extent applicable in such jurisdiction), under the Laws of all jurisdictions where the nature of its business in the manner in which its business is currently being conducted requires such licensing or qualification other than in jurisdictions where the failure to be so qualified individually or in the aggregate would not be reasonably expected to have a Homology Material Adverse Effect.

(c) Except as set forth on Section 4.1(c) of the Homology Disclosure Schedule, Homology has no Subsidiaries other than Merger Sub and Homology does not directly or indirectly own any capital stock of, or any equity ownership or profit sharing interest of any nature in, or control directly or indirectly, any other Entity other than Merger Sub. Homology is not and has not otherwise been, directly or indirectly, a party to, member of or participant in any partnership, joint venture or similar business entity. Homology has not agreed and is not obligated to make, nor is Homology bound by any Contract under which it may become obligated to make, any future investment in or capital contribution to any other Entity. Homology has not, at any time, been a general partner of, and has not otherwise been liable for any of the debts or other obligations of, any general partnership, limited partnership or other Entity.

4.2 Organizational Documents. Homology has delivered to Q32 accurate and complete copies of the Organizational Documents of Homology and Merger Sub. Neither Homology nor Merger Sub is in breach or violation of its Organizational Documents in any material respect.

4.3 Authority; Binding Nature of Agreement. Each of Homology and Merger Sub has all necessary corporate power and authority to enter into and to perform its obligations under this Agreement and to consummate the Contemplated Transactions. The Homology Board (at meetings duly called and held) has: (a) determined that the Contemplated Transactions are fair to, advisable and in the best interests of Homology and its stockholders, (b) approved and declared advisable this Agreement and the Contemplated Transactions, including the issuance of shares of Homology Common Stock to the stockholders of Q32 pursuant to the terms of this Agreement and (c) determined to recommend the Homology Board Recommendation to the stockholders of Homology, and (d) determined to approve and recommend the forms of the Charter Amendment Proposals to the stockholders of Homology as promptly as practicable after the forms thereof are mutually agreed to by Homology and Q32. The Merger Sub Board (by unanimous written consent) has: (x) determined that the Contemplated Transactions are fair to, advisable, and in the best interests of Merger Sub and its sole stockholder, (y) deemed advisable and approved this Agreement and the Contemplated Transactions and (z) determined to recommend, upon the terms and subject to the conditions set forth in this Agreement, that the stockholder of Merger Sub vote to adopt this Agreement and thereby approve the Contemplated Transactions. This Agreement has been duly executed and delivered by Homology and Merger Sub and, assuming the due authorization, execution and delivery by Q32, constitutes the legal, valid and binding obligation of Homology and Merger Sub, enforceable against each of Homology and Merger Sub in accordance with its terms, subject to the Enforceability Exceptions.

4.4 Vote Required. The affirmative vote of a majority of the votes cast at the Homology Stockholder Meeting is the only vote of the holders of any class or series of Homology Common Stock necessary to approve this Agreement and the Contemplated Transactions, including the issuance of the shares of Homology Common Stock to the stockholders of Q32 in the Merger pursuant to the terms of this Agreement (the "**Required Homology Stockholder Vote**") .

4.5 Non-Contravention; Consents.

(a) Subject to obtaining the Required Homology Stockholder Vote and the filing of the Certificate of Merger required by Delaware Law, neither (x) the execution, delivery or performance of this Agreement by Homology or Merger Sub, nor (y) the consummation of the Contemplated Transactions, will directly or indirectly (with or without notice or lapse of time):

(i) contravene, conflict with or result in a violation of any of the provisions of the Organizational Documents of Homology or its Subsidiaries;

(ii) contravene, conflict with or result in a material violation of, or give any Governmental Authority or other Person the right to challenge the Contemplated Transactions or to exercise any remedy or obtain any relief under, any Law or any Order to which Homology or its Subsidiaries, or any of the assets owned or used by Homology or its Subsidiaries, is subject;

(iii) contravene, conflict with or result in a material violation of any of the terms or requirements of, or give any Governmental Authority the right to revoke, withdraw, suspend, cancel, terminate or modify, any Governmental Authorization that is held by Homology or its Subsidiaries or that otherwise relates to the business of Homology, or any of the assets owned, leased or used by Homology;

(iv) contravene, conflict with or result in a violation or breach of, or result in a default under, any provision of any Homology Material Contract, or give any Person the right to: (A) declare a default or exercise any remedy under any Homology Material Contract, (B) any material payment, rebate, chargeback, penalty or change in delivery schedule under any such Homology Material Contract, (C) accelerate the maturity or performance of any Homology Material Contract or (D) cancel, terminate or modify any term of

any Homology Material Contract, except in the case of any nonmaterial breach, default, penalty or modification; or

(v) result in the imposition or creation of any Encumbrance upon or with respect to any asset owned or used by Homology or its Subsidiaries (except for Permitted Encumbrances).

(b) Except for (i) any Consent set forth on Section 4.5 of the Homology Disclosure Schedule under any Homology Contract, (ii) the Required Homology Stockholder Vote, (iii) the filing of the Certificate of Merger with the Secretary of State of the State of Delaware pursuant to Delaware Law and (iv) such consents, waivers, approvals, orders, authorizations, registrations, declarations and filings as may be required under applicable federal and state securities laws, neither Homology nor any of its Subsidiaries was, is or will be required to make any filing with or give any notice to, or to obtain any Consent from, any Person in connection with (x) the execution, delivery or performance of this Agreement or (y) the consummation of the Contemplated Transactions.

(c) The Homology Board and the Merger Sub Board have taken and will take all actions necessary to ensure that the restrictions applicable to business combinations contained in Section 203 of Delaware Law are, and will be, inapplicable to the execution, delivery and performance of this Agreement and to the consummation of the Contemplated Transactions. No other state takeover statute or similar Law applies or purports to apply to the Merger, this Agreement or any of the other Contemplated Transactions.

4.6 Capitalization.

(a) The authorized capital stock of Homology consists of (i) 200,000,000 shares of common stock, par value $0.0001 per share ("**Homology Common Stock**"), of which 57,934,332 shares have been issued and are outstanding as of November 10, 2023 and (ii) 10,000,000 shares of preferred stock, par value $0.0001 per share ("**Homology Preferred Stock**"), of which no shares have been issued and are outstanding as of November 10, 2023 (the "Capitalization Date"). Homology does not hold any shares of its capital stock in its treasury.

(b) All of the outstanding shares of Homology Common Stock have been duly authorized and validly issued, and are fully paid and nonassessable and are free of any Encumbrances other than under applicable securities Laws. None of the outstanding shares of Homology Common Stock is entitled or subject to any preemptive right, right of participation, right of maintenance or any similar right and none of the outstanding shares of Homology Common Stock is subject to any right of first refusal in favor of Homology. Except as contemplated herein, there is no Homology Contract relating to the voting or registration of, or restricting any Person from purchasing, selling, pledging or otherwise disposing of (or granting any option or similar right with respect to), any shares of Homology Common Stock. Homology is not under any obligation, nor is it bound by any Contract pursuant to which it may become obligated, to repurchase, redeem or otherwise acquire any outstanding shares of Homology Common Stock or other securities. Section 4.6(b) of the Homology Disclosure Schedule accurately and completely lists all repurchase rights held by Homology with respect to shares of Homology Common Stock (including shares issued pursuant to the exercise of options) and specifies which of those repurchase rights are currently exercisable.

(c) Except for the Homology Equity Plans and the Homology Options and Homology Restricted Stock Unit Awards granted thereunder, Homology does not have any stock incentive plan or any other plan, program, agreement or arrangement providing for any equity or equity-based compensation for any Person and there were no other equity or equity-based awards outstanding as of the date of this Agreement. As of the Capitalization Date, Homology has reserved 13,363,775 shares of Homology Common Stock for issuance under the Homology Equity Plans, of which 416,819 shares have been issued and are outstanding pursuant to the exercise of Homology Options or settlement of Homology Restricted Stock Units, 10,225,976 shares are subject to outstanding Homology Options, 460,388 shares are subject to outstanding Homology Restricted Stock Unit Awards, and 1,978,793 shares remain available for future grant pursuant to the Homology Equity Plans.

Section 4.6(c) of the Homology Disclosure Schedule sets forth a true and complete list, as of November 1, 2023, of each outstanding Homology Option and Homology Restricted Stock Unit award, including: (i) the name of the holder, (ii) the number of shares of Homology Common Stock subject to such Homology Option and/or Homology Restricted Stock Unit Award, (iii) the exercise price of each Homology Option, (iv) the date of grant, (v) the applicable vesting schedule, including any acceleration provisions and the number of vested and unvested shares, (vi) the expiration date, as applicable, and (vii) whether the Homology Option is intended to be an "incentive stock option" (as defined in the Code) or a non-qualified stock option. Homology has made available to Q32 accurate and complete copies of the following (except for such documents that are filed as an exhibit to a Homology SEC Document): (A) the standard form of agreement evidencing Homology Options and Homology Restricted Stock Unit Awards; and (B) each agreement evidencing a Homology Option or Homology Restricted Stock Unit Award that does not conform in all material respects to the standard form agreement.

(d) Except as set forth on Section 4.6(c) of the Homology Disclosure Schedule, there is no: (i) outstanding subscription, option, call, warrant or right (whether or not currently exercisable) to acquire any shares of the capital stock or other securities of Homology, (ii) outstanding security, instrument or obligation that is or may become convertible into or exchangeable for any shares of the capital stock or other securities of Homology, (iii) stockholder rights plan (or similar plan commonly referred to as a "poison pill") or Contract under which Homology is or may become obligated to sell or otherwise issue any shares of its capital stock or any other securities or (iv) condition or circumstance that may give rise to or provide a basis for the assertion of a claim by any Person to the effect that such Person is entitled to acquire or receive any shares of capital stock or other securities of Homology.

(e) All outstanding shares of Homology Common Stock and other securities of Homology have been issued and granted in material compliance with (i) all applicable securities laws and other applicable Law and (ii) all requirements set forth in applicable Contracts.

4.7 SEC Filings; Financial Statements.

(a) Homology has filed or furnished, as applicable, on a timely basis all forms, statements, certifications, reports and documents required to be filed or furnished by it with the SEC under the Exchange Act or the Securities Act since January 1, 2021 (the "**Homology SEC Documents**"). As of the time it was filed with the SEC (or, if amended or superseded by a filing prior to the date of this Agreement, then on the date of such filing), each of the Homology SEC Documents complied in all material respects with the applicable requirements of the Securities Act or the Exchange Act (as the case may be) and as of the time they were filed, none of the Homology SEC Documents contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The certifications and statements required by (i) Rule 13a-14 under the Exchange Act and (ii) 18 U.S.C. §1350 (Section 906 of the Sarbanes-Oxley Act) relating to the Homology SEC Documents (collectively, the "**Homology Certifications**") are accurate and complete and comply as to form and content with all applicable Laws. As used in this Section 4.7, the term "file" and variations thereof shall be broadly construed to include any manner in which a document or information is furnished, supplied or otherwise made available to the SEC.

(b) The financial statements (including any related notes) contained or incorporated by reference in the Homology SEC Documents: (i) complied as to form in all material respects with the Securities Act and the Exchange Act, as applicable, and the published rules and regulations of the SEC applicable thereto, (ii) were prepared in accordance with GAAP (except as may be indicated in the notes to such financial statements or, in the case of unaudited financial statements, as permitted by Form 10-Q of the SEC, and except that the unaudited financial statements are subject to normal and recurring year-end adjustments that are not reasonably expected to be material in amount) applied on a consistent basis unless otherwise noted therein throughout the periods indicated and (iii) fairly present, in all material respects, the financial position of Homology as of the respective dates thereof and the results of operations and cash flows of Homology for the periods covered thereby. Other

than as expressly disclosed in the Homology SEC Documents filed prior to the date hereof, there has been no material change in Homology's accounting methods or principles that would be required to be disclosed in Homology's financial statements in accordance with GAAP. The books of account and other financial records of Homology and each of its Subsidiaries are true and complete in all material respects.

(c) Homology's auditor has at all times since the date of enactment of the Sarbanes-Oxley Act been: (i) a registered public accounting firm (as defined in Section 2(a)(12) of the Sarbanes-Oxley Act), (ii) to the Knowledge of Homology, "independent" with respect to Homology within the meaning of Regulation S-X under the Exchange Act and (iii) to the Knowledge of Homology, in compliance with subsections (g) through (l) of Section 10A of the Exchange Act and the rules and regulations promulgated by the SEC and the Public Company Accounting Oversight Board thereunder.

(d) Except as set forth on Section 4.7(d) of the Homology Disclosure Schedule, Homology has not received any comment letter from the SEC or the staff thereof or any correspondence from Nasdaq or the staff thereof relating to the delisting or maintenance of listing of Homology Common Stock on Nasdaq. Homology has not disclosed any unresolved comments in the Homology SEC Documents.

(e) There have been no formal internal investigations regarding financial reporting or accounting policies and practices discussed with, reviewed by or initiated at the direction of the chief executive officer, chief financial officer, or general counsel of Homology, the Homology Board or any committee thereof, other than ordinary course audits or reviews of accounting policies and practices or internal controls required by the Sarbanes-Oxley Act.

(f) Except as set forth on Section 4.7(f) of the Homology Disclosure Schedule, Homology is in compliance in all material respects with the applicable provisions of the Sarbanes-Oxley Act, the Exchange Act and the applicable listing and governance rules and regulations of Nasdaq.

(g) Homology maintains a system of internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-l5(f) of the Exchange Act) that is sufficient to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including policies and procedures sufficient to provide reasonable assurance (i) that Homology maintains records that in reasonable detail accurately and fairly reflect Homology's transactions and dispositions of assets, (ii) that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, (iii) that receipts and expenditures are made only in accordance with authorizations of management and the Homology Board and (iv) regarding prevention or timely detection of the unauthorized acquisition, use or disposition of Homology's assets that could have a material effect on Homology's financial statements. Homology has evaluated the effectiveness of Homology's internal control over financial reporting and, to the extent required by applicable Law, presented in any applicable Homology SEC Document that is a report on Form 10-K or Form 10-Q (or any amendment thereto) its conclusions about the effectiveness of the internal control over financial reporting as of the end of the period covered by such report or amendment based on such evaluation. Homology has disclosed to Homology's auditors and the Audit Committee of the Homology Board (and made available to Homology a summary of the significant aspects of such disclosure) (A) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting that are reasonably likely to adversely affect Homology's ability to record, process, summarize and report financial information and (B) any known fraud, whether or not material, that involves management or other employees who have a significant role in Homology or its Subsidiaries' internal control over financial reporting. Except as disclosed in the Homology SEC Documents filed prior to the date hereof, Homology's internal control over financial reporting is effective and Homology has not identified any material weaknesses in the design or operation of Homology's internal control over financial reporting.

(h) Homology's "disclosure controls and procedures" (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) are designed to ensure that all information (both financial and nonfinancial) required to be

disclosed by Homology in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC, and that all such information is accumulated and communicated to Homology's principal executive officer and principal financial officer as appropriate to allow timely decisions regarding required disclosure and to make the Homology Certifications and such disclosure controls and procedures are effective. Homology has carried out evaluation of the effectiveness of its disclosure controls and procedures as required by Rule 13a-l5 of the Exchange Act.

(i) Homology has not been and is not currently a "shell company" as defined under Section 12b-2 of the Exchange Act.

4.8 Absence of Changes. Except as set forth on Section 4.8 of the Homology Disclosure Schedule, since January 1, 2023, Homology and its Subsidiaries have conducted its business only in the Ordinary Course of Business (except for the execution and performance of this Agreement and the discussions, negotiations and transactions related thereto) and there has not been any (a) Homology Material Adverse Effect or (b) action, event or occurrence that would have required consent of Homology pursuant to Section 5.2 of this Agreement had such action, event or occurrence taken place after the execution and delivery of this Agreement.

4.9 Absence of Undisclosed Liabilities. Neither Homology nor any of its Subsidiaries has any Liability of a type required to be reflected or reserved for on a balance sheet prepared in accordance with GAAP, except for: (a) Liabilities disclosed, reflected or reserved against in the Homology Balance Sheet, (b) normal and recurring current Liabilities that have been incurred by Homology or its Subsidiaries since the date of the Homology Balance Sheet in the Ordinary Course of Business (none of which relates to any breach of contract, breach of warranty, tort, infringement, or violation of Law), (c) Liabilities for performance of obligations of Homology or any of its Subsidiaries under Homology Contracts, (d) Liabilities incurred in connection with the Contemplated Transactions and the Subscription Agreement and (e) Liabilities listed in Section 4.9 of the Homology Disclosure Schedule.

4.10 Title to Assets. Each of Homology and its Subsidiaries owns, and has good and valid title to, or, in the case of leased properties and assets, valid leasehold interests in, all tangible properties or tangible assets and equipment used or held for use in its business or operations or purported to be owned by it, including: (a) all tangible assets reflected on the Homology Balance Sheet and (b) all other tangible assets reflected in the books and records of Homology as being owned by Homology. All of such assets are owned or, in the case of leased assets, leased by Homology or any of its Subsidiaries free and clear of any Encumbrances, other than Permitted Encumbrances.

4.11 Real Property; Leasehold. Neither Homology nor any of its Subsidiaries owns or has ever owned any real property. Homology has made available to Q32 (a) an accurate and complete list of all real properties with respect to which Homology directly or indirectly holds a valid leasehold interest as well as any other real estate that is in the possession of or leased by Homology or any of its Subsidiaries and (b) copies of all leases under which any such real property is possessed (the "**Homology Real Estate Leases**"), each of which is in full force and effect, with no existing material default thereunder.

4.12 Intellectual Property.

(a) Section 4.12(a) of the Homology Disclosure Schedule is an accurate, true and complete listing of all Homology Registered IP, including for each item (i) the record owner (and name of any other Person with an ownership interest in such item of Homology Registered IP, if any), jurisdiction (or, with respect to domain names, the applicable registrar), status, date and registration or application number of each item, as applicable, (ii) the name of the record owner and any other Person that has an ownership interest in such item of Homology Registered IP, and the nature of such ownership interest, and (iii) any actions that are required to be taken within 180 days of the date hereof for any Homology Registered IP, including the payment of any registration, maintenance or renewal fees or the filing of or response to any documents, applications or certificates, for the

purposes of prosecuting, obtaining, perfecting, maintaining or renewing any Homology Registered IP. Section 4.12(a) of the Homology Disclosure Schedule also sets forth, as of the date of this Agreement, a list of all internet domain names with respect to which Homology or any of its Subsidiaries are the registrant and, with respect to each domain name, the record owner of such domain name and if different, the legal and beneficial owner(s) of such domain name and the applicable domain name registrar.

(b) Section 4.12(b) of the Homology Disclosure Schedule accurately identifies (all Homology Contracts pursuant to which any material Homology IP Rights are licensed to Homology (other than (A) any non-customized software that (1) is so licensed solely in executable or object code form pursuant to a nonexclusive, internal use software license and other Intellectual Property associated with such software and (2) is not incorporated into, or material to the development, manufacturing, or distribution of, any of Homology's or its Subsidiaries' products or services, (B) any Intellectual Property licensed on a nonexclusive basis ancillary to the purchase or use of equipment, reagents or other materials, (C) any confidential information provided under confidentiality agreements and (D) agreements between Homology or its Subsidiaries and their respective employees in Homology's standard form thereof). To the Knowledge of Homology, each Homology Contract listed in Section 4.12(b) of the Homology Disclosure Schedule is in full force and effect and constitutes a legal, valid, and binding obligation of Homology, its Subsidiaries and each other party thereto, and is enforceable against Homology, its Subsidiaries and each other party thereto in accordance with its terms. To the Knowledge of Homology, neither Homology, its Subsidiaries, nor any other party to any Homology Contract listed in Section 4.12(b) of the Homology Disclosure Schedule has been or is, or has been or is alleged to be, in material default under, or has provided or received any notice of breach under, or intention to terminate (including by non-renewal), any Homology Contract listed in Section 4.12(b) of the Homology Disclosure Schedule, except as would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect.

(c) Except for instances that would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect, Section 4.12(c) of the Homology Disclosure Schedule accurately identifies each Homology Contract pursuant to which any Person has been granted any license under, or otherwise has received or acquired any right (whether or not currently exercisable) or interest in, any Homology IP Rights (other than (i) any confidential information provided under confidentiality agreements and (ii) any Homology IP Rights nonexclusively licensed to academic collaborators, suppliers or service providers for the sole purpose of enabling such academic collaborator, supplier or service providers to provide services for Homology's or its Subsidiaries' benefit). To the Knowledge of Homology, each Homology Contract listed in Section 4.12(c) of the Homology Disclosure Schedule is in full force and effect and constitutes a legal, valid, and binding obligation of Homology, its Subsidiaries and each other party thereto, and is enforceable against Homology, its Subsidiaries and each other party thereto in accordance with its terms. Neither Homology, its Subsidiaries nor, to the Knowledge of Homology, any other party to any Homology Contract listed in Section 4.12(c) of the Homology Disclosure Schedule has provided or received any written notice or allegation of breach under, or intention to terminate (including by non-renewal), any Homology Contract listed in Section 4.12(c) of the Homology Disclosure Schedule.

(d) Except as identified on Section 4.12(d) of the Homology Disclosure Schedule, neither Homology nor any of its Subsidiaries is bound by, no Homology Owned IP Rights are subject to, and to the Knowledge of Homology, no Homology Licensed IP Rights are subject to, any Contract containing any covenant or other provision that in any way limits or restricts the ability of Homology or any of its Subsidiaries to use, exploit, assert, or enforce any Homology IP Rights anywhere in the world, except as would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect.

(e) Homology or one of its Subsidiaries exclusively owns all right, title, and interest to and in the Homology IP Rights (other than (i) Homology Licensed IP Rights, or co-owned rights each as identified in Section 4.12(c) of the Homology Disclosure Schedule, (ii) any non-customized software that (A) is licensed to Homology or its Subsidiaries solely in executable or object code form pursuant to a nonexclusive, internal use software license and other Intellectual Property associated with such software and (B) is not incorporated into, or material to the

development, manufacturing, or distribution of, any of Homology or its Subsidiaries' products or services and (iii) any Intellectual Property licensed on a nonexclusive basis ancillary to the purchase or use of equipment, reagents or other materials), in each case, free and clear of any Encumbrances (other than Permitted Encumbrances).

(f) To the Knowledge of Homology, (i) all documents and instruments necessary to register or apply for or renew registration of Homology Registered IP owned by Homology, and (ii) all documents and instruments necessary to register or apply for or renew registration of Homology Registered IP exclusively licensed to Homology, have been validly executed, delivered, and filed in a timely manner with the appropriate Governmental Authority. To the Knowledge of Homology, (A) Homology has filed all statements of use and paid all renewal and maintenance fees, annuities and other fees with respect to the Homology Registered IP owned by Homology, and (B) Homology has executed all documents and instruments necessary to register or apply for or renew registration of Homology Registered IP exclusively licensed to Homology, in each case (A) and (B), that are due or payable as of the date of this Agreement.

(g) Except for instances that would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect, to the Knowledge of Homology each Person who is or was an employee, contractor or consultant of Homology or any of its Subsidiaries and who is or was involved in the creation, discovery, reduction to practice or development of any Intellectual Property for Homology or any of its Subsidiaries has signed a valid, enforceable written agreement containing a present assignment of all right, title and interest in and to such Intellectual Property to Homology or such Subsidiary and confidentiality provisions protecting trade secrets and confidential information of Homology and its Subsidiaries.

(h) To the Knowledge of Homology, no current or former member, officer, director, or employee of Homology or any of its Subsidiaries has any claim, right (whether or not currently exercisable), or interest to or in any Homology IP Rights purported to be owned by Homology. To the Knowledge of Homology, no employee of Homology or any of its Subsidiaries is (A) bound by or otherwise subject to any Contract restricting him or her from performing his or her duties for Homology or such Subsidiary or (B) in breach of any Contract with any former employer or other Person concerning Homology IP Rights purported to be owned by Homology or such Subsidiary or confidentiality provisions protecting trade secrets and confidential information comprising Homology IP Rights purported to be owned by Homology or such Subsidiary.

(i) No funding, facilities, or personnel of any Governmental Authority were used, directly or indirectly, to develop or create, in whole or in part, any Homology Owned IP Rights, or, to the Knowledge of Homology, any Homology Licensed IP Rights, and no educational institution has any right to, or right to royalties for, or to impose any requirement on the manufacture or commercialization of any product incorporating, any Homology Owned IP Rights, or, to the Knowledge of Homology, any Homology Licensed IP Rights. To the Knowledge of Homology, no Governmental Authority has any right to (including any "step-in" or "march-in" rights with respect to), ownership of, commercialization of, or right to royalties or other payments for any Homology Owned IP Rights, or, to the Knowledge of Homology, any Licensed IP Rights. Without limiting the generality of the foregoing, to the Knowledge of Homology, no invention claimed or covered by any Patent within the Homology Owned IP Rights, or, to the Knowledge of Homology, any Homology Licensed IP Rights, (A) was conceived or reduced to practice in connection with any research activities funded, in whole or in part, by the federal government of the United States or any agency thereof, (B) is a "subject invention" as that term is described in 35 U.S.C. Section 201(e), or (C) is otherwise subject to the provisions of the Bayh-Dole Act or any similar Law of any other jurisdiction, including with respect to any Patents that are part of the Homology IP Rights.

(j) Homology and each of its Subsidiaries has taken reasonable steps to maintain the confidentiality of and otherwise protect, maintain and enforce its rights in all proprietary information that Homology or such Subsidiary holds, or purports to hold, as confidential or a trade secret. To the Knowledge of Homology, neither Homology nor any of its Subsidiaries has made any of its trade secrets or other material confidential or proprietary information that it intended to maintain as confidential information available to any other Person except pursuant

to written agreements requiring such Person to maintain the confidentiality of such trade secrets or confidential information. To the Knowledge of Homology, there have been no material security breaches, outages, violations or unauthorized access to any of the proprietary information that Homology or any of its Subsidiaries holds, or purports to hold, as confidential or a trade secret, except as would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect.

(k) Neither Homology nor any of its Subsidiaries has assigned or otherwise transferred ownership of, or agreed to assign or otherwise transfer ownership of, any Homology IP Rights, to any other Person.

(l) To the Knowledge of Homology, neither Homology nor any of its Subsidiaries has taken or failed to take any action that could be reasonably expected to result in the abandonment, invalidity, cancellation, forfeiture, relinquishing, invalidation or unenforceability of any Homology IP Rights (including with respect to any trademark, a failure to exercise adequate quality controls or an assignment in gross without the accompanying goodwill). To the Knowledge of Homology, each item of Homology IP Right has been duly maintained and is not expired, abandoned or cancelled. To the Knowledge of Homology, each of the Patents included in the Homology IP Rights identifies each and every inventor of the claims thereof as determined in accordance with the applicable laws of the jurisdiction in which such Patent is issued or pending. To the Knowledge of Homology, neither Homology nor any of its Subsidiaries has engaged in patent or copyright misuse or any fraud or inequitable conduct in connection with any Homology IP Right. To the Knowledge of Homology, each of Homology and its Subsidiaries and their respective patent counsel have complied with its duty of candor and disclosure and have made no material misrepresentations in the filings submitted to the applicable Governmental Authorities with respect to all Patents included in the Homology IP Rights for which Homology or any of its Subsidiaries is responsible for prosecuting.

(m) To the Knowledge of Homology, the Homology IP Rights constitute all Intellectual Property necessary for Homology to conduct its business as currently conducted or proposed to be conducted; provided, however, that the foregoing representation is not a representation with respect to non-infringement of Intellectual Property.

(n) Homology has delivered, or made available to Q32, a complete and accurate copy of all material Homology IP Rights Agreements.

(o) To the Knowledge of Homology, the manufacture, marketing, offering for sale, sale, importation, use or intended use or other disposal of any product as currently sold or under development by Homology does not violate any license or agreement between Homology or its Subsidiaries and any third party in any material respect, and, to the Knowledge of Homology, does not infringe or misappropriate any valid and issued Patent or other Intellectual Property of any other Person, which infringement or misappropriation would reasonably be expected to have a Homology Material Adverse Effect. To the Knowledge of Homology, no third party is infringing upon any Patents owned by Homology within the Homology IP Rights, or otherwise violating any Homology IP Rights Agreement.

(p) As of the date of this Agreement, neither Homology nor any of its Subsidiaries is a party to any Legal Proceeding (including, but not limited to, opposition, interference or other proceeding in any patent or other government office) contesting the validity, ownership or right to use, sell, offer for sale, license or dispose of any Homology IP Rights. None of the Homology IP Rights, and to the Knowledge of Homology, none of the Homology Licensed IP Rights, have been adjudged invalid or unenforceable in whole or part, and all Homology Owned IP Rights, and to the Knowledge of Homology, all Homology Licensed IP Rights, are in full force and effect. No Patent within the Homology Registered IP owned by Homology, or to the Knowledge of Homology, no Patents within the Homology Registered IP exclusively licensed to Homology, have been subject to any interference, derivation, reexamination (including ex parte reexamination, inter partes reexamination, inter partes review, or post grant review), reissue, cancellation, opposition, claim, allegation or other action, including any proceeding in which the scope, validity, inventorship, ownership or enforceability of any such Patent is being, has been, or could reasonably be expected to be, contested or challenged. Neither Homology nor any of its

Subsidiaries have received any written notice asserting that any Homology IP Rights or the proposed use, sale, offer for sale, license or disposition of products, methods, or processes claimed or covered thereunder infringes or misappropriates or violates the rights of any other Person or that Homology or any of its Subsidiaries have otherwise infringed, misappropriated or otherwise violated any Intellectual Property of any Person.

(q) To the Knowledge of Homology, no trademark (whether registered or unregistered) or trade name owned, used, or applied for by Homology conflicts or interferes with any trademark (whether registered or unregistered) or trade name owned, used, or applied for by any other Person except as would not have a Homology Material Adverse Effect. To the Knowledge of Homology, none of the goodwill associated with or inherent in any trademark (whether registered or unregistered) in which Homology or its Subsidiaries has or purports to have an ownership interest has been impaired as determined by Homology in accordance with GAAP. Section 4.12(q) of the Homology Disclosure Schedule sets forth all material unregistered trademarks included in the Homology IP Rights.

(r) Except (i) as would reasonably be expected to have a Homology Material Adverse Effect, (ii) as may be set forth in Section 4.12(b) or 4.12(c) of the Homology Disclosure Schedule or (iii) as contained in license, distribution or service agreements entered into in the Ordinary Course of Business by Homology, to the Knowledge of Homology, (A) neither Homology nor any of its Subsidiaries is bound by any Contract to indemnify, defend, hold harmless, or reimburse any other Person with respect to any Intellectual Property infringement, misappropriation, or similar claim which is material to Homology or any of its Subsidiaries, taken as a whole and (B) neither Homology nor any of its Subsidiaries has ever assumed, or agreed to discharge or otherwise take responsibility for, any existing or potential liability of another Person for infringement, misappropriation, or violation of any Intellectual Property right, which assumption, agreement or responsibility remains in force as of the date of this Agreement.

(s) To the Knowledge of Homology, neither Homology nor any of its Subsidiaries is party to any Contract that, as a result of such execution, delivery and performance of this Agreement, will (i) cause the grant, assignment or transfer to any other third party of any license or other right to or in any Homology IP Rights, (ii) result in breach of, default under termination of, or acceleration or modification of such Contract with respect to any Homology IP Rights, (iii) alter, encumber impair or extinguish, or result in any Encumbrance with respect to the right of Homology or the Surviving Corporation and its Subsidiaries to use, sell or license or enforce any Homology IP Rights or portion thereof or (iv) result in Homology or any of its Subsidiaries being bound by or subject to any exclusivity obligations, non-compete or other restrictions on the operation or scope of their respective businesses, or to any obligation to grant any rights in or to any Homology IP Rights, except, in each of (i), (ii), (iii) and (iv), for the occurrence of any such grant or impairment that would not individually or in the aggregate, reasonably be expected to result in a Homology Material Adverse Effect.

4.13 Agreements, Contracts and Commitments.

(a) Section 4.13 of the Homology Disclosure Schedule lists the following Homology Contracts in effect as of the date of this Agreement other than the Subscription Agreement (each, a "**Homology Material Contract**" and collectively, the "**Homology Material Contracts**"):

(i) each Homology Contract that is a collective bargaining agreement or other agreement or arrangement with any labor union, works council or labor organization;

(ii) each Homology Contract for the employment or engagement of any individual on an employee, consulting or other basis that provides for annual base compensation in excess of $200,000;

(iii) each Homology Contract with any Homology Associate that provides for retention, change in control, transaction or other similar payments or benefits, whether or not payable as a result of the Contemplated Transactions;

(iv) each Homology Contract relating to any agreement of indemnification or guaranty not entered into in the Ordinary Course of Business;

(v) each Homology Contract containing (A) any covenant limiting the freedom of Homology or any of its Subsidiaries to engage in any line of business or compete with any Person, or limiting the development, manufacture, or distribution of Homology's products or services, (B) any most-favored pricing arrangement, (C) any exclusivity provision or (D) any non-solicitation provision;

(vi) each Homology Contract (A) pursuant to which any Person granted Homology an exclusive license under any Intellectual Property, or (B) pursuant to which Homology granted any Person an exclusive license under any Homology IP Rights;

(vii) each Homology Contract relating to capital expenditures and requiring payments after the date of this Agreement in excess of $500,000 pursuant to its express terms and not cancelable without penalty;

(viii) each Homology Contract relating to the disposition or acquisition of material assets or any ownership interest in any Entity, in each case, involving payments in excess of $250,000 after the date of this Agreement;

(ix) each Homology Contract relating to any mortgages, indentures, loans, notes or credit agreements, security agreements or other agreements or instruments relating to the borrowing of money or extension of credit in excess of $500,000 or creating any material Encumbrances with respect to any assets of Homology or any loans or debt obligations with officers or directors of Homology;

(x) each Homology Contract requiring payment by or to Homology after the date of this Agreement in excess of $500,000 pursuant to its express terms relating to: (A) any distribution agreement (identifying any that contain exclusivity provisions), (B) any agreement involving provision of services or products with respect to any pre-clinical or clinical development activities of Homology, (C) any dealer, distributor, joint marketing, alliance, joint venture, cooperation, development or other agreement currently in force under which Homology or any of its Subsidiaries has continuing obligations to develop or market any product, technology or service, or any agreement pursuant to which Homology or any of its Subsidiaries has continuing obligations to develop any Intellectual Property that will not be owned, in whole or in part, by Homology or such Subsidiary or (D) any Contract to license any Patent, trademark registration, service mark registration, trade name or copyright registration to or from any third party to manufacture or produce any product, service or technology of Homology or any of its Subsidiaries or any Contract to sell, distribute or commercialize any products or service of Homology or any of its Subsidiaries, in each case, except for Homology Contracts entered into in the Ordinary Course of Business;

(xi) each Homology Contract with any Person, including any financial advisor, broker, finder, investment banker or other Person, providing advisory services to Homology in connection with the Contemplated Transactions;

(xii) each Homology Contract to which Homology or any of its Subsidiaries is a party or by which any of their assets and properties is currently bound, which involves annual obligations of payment by, or annual payments to, Homology or such Subsidiary in excess of $500,000;

(xiii) a Homology Real Estate Lease;

(xiv) a Contract disclosed in or required to be disclosed in Section 4.12(b) or Section 4.12(c) of the Homology Disclosure Schedule; or

(xv) any other Homology Contract that is not terminable at will (with no penalty or payment) by Homology or any of its Subsidiaries, and (A) which involves payment or receipt by Homology or such Subsidiary after the date of this Agreement under any such agreement, contract or commitment of more than $500,000 in the aggregate, or obligations after the date of this Agreement in excess of $1,000,000 in the aggregate or (B) that is material to the business or operations of Homology and its Subsidiaries taken as a whole.

(b) Homology has delivered or made available to Q32 accurate and complete copies of all Homology Material Contracts, including all amendments thereto. There are no Homology Material Contracts that are not in

written form. Homology has not, nor, to Homology's Knowledge as of the date of this Agreement, has any other party to a Homology Material Contract, breached, violated or defaulted under, or received notice that it breached, violated or defaulted under, any of the terms or conditions of any Homology Material Contract in such manner as would permit any other party to cancel or terminate any such Homology Material Contract, or would permit any other party to seek damages which would reasonably be expected to have a Homology Material Adverse Effect. As to Homology and its Subsidiaries, as of the date of this Agreement, each Homology Material Contract is valid, binding, enforceable and in full force and effect, subject to the Enforceability Exceptions. No Person is renegotiating, or has a right pursuant to the terms of any Homology Material Contract to change, any material amount paid or payable to Homology under any Homology Material Contract or any other material term or provision of any Homology Material Contract.

4.14 Compliance; Permits; Restrictions.

(a) Homology and each of its Subsidiaries is, and since January 1, 2020, has been in material compliance with all applicable Laws. No investigation, claim, suit, proceeding, audit, Order, or other action by any Governmental Authority is pending or, to the Knowledge of Homology, threatened against Homology or any of its Subsidiaries. There is no agreement or Order binding upon Homology or any of its Subsidiaries which (i) has or could reasonably be expected to have the effect of prohibiting or materially impairing any business practice of Homology or any of its Subsidiaries, any acquisition of material property by Homology or any of its Subsidiaries or the conduct of business by Homology or any of its Subsidiaries as currently conducted, (ii) is reasonably likely to have an adverse effect on Homology's ability to comply with or perform any covenant or obligation under this Agreement or (iii) is reasonably likely to have the effect of preventing, delaying, making illegal or otherwise interfering with the Contemplated Transactions.

(b) Each of Homology and its Subsidiaries holds all required Governmental Authorizations that are material to the operation of the business of Homology and Merger Sub as currently conducted (collectively, the "**Homology Permits**"). Section 4.14(b) of the Homology Disclosure Schedule identifies each Homology Permit. Each of Homology and its Subsidiaries is in material compliance with the terms of the Homology Permits. No Legal Proceeding is pending or, to the Knowledge of Homology, threatened, which seeks to revoke, substantially limit, suspend, or materially modify any Homology Permit.

(c) There are no Legal Proceedings pending or, to the Knowledge of Homology, threatened in writing with respect to an alleged material violation by Homology or any of its Subsidiaries of the FDCA, PHSA, FDA regulations adopted thereunder, the Controlled Substances Act or any other Law promulgated by a Drug Regulatory Agency.

(d) Each of Homology and its Subsidiaries holds all required material Governmental Authorizations issuable by any Drug Regulatory Agency necessary for the conduct of the business of Homology and Merger Sub as currently conducted, and, as applicable, the research, development, testing, manufacturing, packaging, processing, storage, labeling, sale, marketing, advertising, distribution and importation or exportation, as currently conducted, of any of its product candidates (the "**Homology Product Candidates**") (collectively, the "**Homology Regulatory Permits**") and no such Homology Regulatory Permit has been (i) revoked, withdrawn, suspended, cancelled or terminated or (ii) modified in any material, adverse manner. Homology has timely maintained and is in compliance in all material respects with the Homology Regulatory Permits and neither Homology nor any of its Subsidiaries has, since January 1, 2020, received any written notice or other written communication from any Drug Regulatory Agency regarding (A) any material violation of or failure to comply materially with any term or requirement of any Homology Regulatory Permit or (B) any revocation, withdrawal, suspension, cancellation, termination or material modification of any Homology Regulatory Permit.

(e) All clinical, pre-clinical and other studies and tests conducted by or on behalf of, or sponsored by, Homology or its Subsidiaries, in which Homology or its Subsidiaries or their respective product candidates, including the Homology Product Candidates, have participated, were and, if still pending, are being conducted in

compliance in all material respects with the applicable regulations of the Drug Regulatory Agencies and other applicable Law, including, without limitation, 21 C.F.R. Parts 50, 54, 56, 58 and 312. Other than as set forth on Section 4.14(e) of the Homology Disclosure Schedule, neither Homology nor any of its Subsidiaries has received any written notices, correspondence, or other communications from any Drug Regulatory Agency requiring, or, to the Knowledge of Homology, any action to place a clinical hold order on, or otherwise terminate, delay, or suspend any clinical studies conducted by or on behalf of, or sponsored by, Homology or any of its Subsidiaries or in which Homology or any of its Subsidiaries or its current product candidates, including the Homology Product Candidates, have participated.

(f) Neither Homology nor any of its Subsidiaries has, and, to the Knowledge of Homology, any contract manufacturer with respect to any Homology Product Candidate, is the subject of any pending or, to the Knowledge of Homology, threatened investigation in respect of its business or products by the FDA pursuant to its "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto, or any other applicable Law. To the Knowledge of Homology, neither Homology nor any of its Subsidiaries nor any contract manufacturer with respect to any Homology Product Candidate has committed any acts, made any statement, or failed to make any statement, in each case in respect of Homology's business or products that would violate the FDA's "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities" Final Policy, and any amendments thereto, or any other applicable Law. None of Homology, any of its Subsidiaries, and to the Knowledge of Homology, any contract manufacturer with respect to any Homology Product Candidate, or any of their respective officers, employees or agents has been convicted of any crime or engaged in any conduct that could result in a debarment or exclusion under (i) 21 U.S.C. Section 335a (ii) 42 U.S.C. § 1320a-7, or (iii) any other applicable Law. To the Knowledge of Homology, no debarment or exclusionary claims, actions, proceedings or investigations in respect of their business or products are pending or threatened against Homology, any of its Subsidiaries, and to the Knowledge of the Homology, any contract manufacturer with respect to any Homology Product Candidate, or any of its officers, employees or agents. Neither Homology nor any of its Subsidiaries is a party to or has any reporting obligations under any corporate integrity agreements, monitoring agreements, deferred or non-prosecution agreements, consent decrees, settlement orders, or similar agreements with or imposed by any Governmental Authority.

(g) All manufacturing operations conducted by, or to the Knowledge of Homology, for the benefit of, Homology or its Subsidiaries in connection with any Homology Product Candidate, since January 1, 2020, have been and are being conducted in compliance in all material respects with applicable Laws, including the FDA's standards for current good manufacturing practices, including applicable requirements contained in 21 C.F.R. Parts 210, 211, 600-680 and 1271, and the respective counterparts thereof promulgated by Governmental Authorities in countries outside the United States.

(h) No laboratory or manufacturing site owned by Homology or its Subsidiaries, and to the Knowledge of Homology, no manufacturing site of a contract manufacturer or laboratory, with respect to any Homology Product Candidate, (i) is subject to a Drug Regulatory Agency shutdown or import or export prohibition or (ii) has since January 1, 2020, received any unresolved Form FDA 483, notice of violation, warning letter, untitled letter, or similar correspondence or notice from the FDA or other Governmental Authority alleging or asserting material noncompliance with any applicable Law, and, to the Knowledge of Homology, neither the FDA nor any other Governmental Authority is considering such action.

4.15 Legal Proceedings; Orders.

(a) Except as set forth in Section 4.15 of the Homology Disclosure Schedule, there is no pending Legal Proceeding and, to the Knowledge of Homology, no Person has threatened in writing to commence any Legal Proceeding: (i) that involves Homology or any of its Subsidiaries or any Homology Associate (in his or her capacity as such) or any of the material assets owned or used by Homology or any of its Subsidiaries or (ii) that challenges, or that may have the effect of preventing, delaying, making illegal or otherwise interfering with, the Contemplated Transactions.

(b) There is no Order to which Homology or any of its Subsidiaries, or any of the material assets owned or used by Homology or any of its Subsidiaries is subject. To the Knowledge of Homology, no officer or other Key Employee of Homology or any of its Subsidiaries is subject to any Order that prohibits such officer or employee from engaging in or continuing any conduct, activity or practice relating to the business of Homology or any of its Subsidiaries or to any material assets owned or used by Homology or any of its Subsidiaries.

4.16 Tax Matters.

(a) Each of Homology and each of its Subsidiaries has timely filed all income Tax Returns and all other material Tax Returns that were required to be filed by or with respect to it under applicable Law. All such Tax Returns were correct and complete in all material respects and have been prepared in material compliance with all applicable Law. Subject to exceptions as would not be material, no claim has ever been made by a Governmental Authority in a jurisdiction where Homology or any of its Subsidiaries does not file a particular type of Tax Return that Homology or any of its Subsidiaries is subject to taxation by that jurisdiction that would require the filing of such a Tax Return.

(b) All material amounts of Taxes due and owing by Homology and each of its Subsidiaries (whether or not shown on any Tax Return) have been timely paid. The unpaid Taxes of Homology and each of its Subsidiaries for periods (or portions thereof) ending on or prior to the date of the Homology Balance Sheet do not materially exceed the accruals for current Taxes set forth on the Homology Balance Sheet. Since the date of the Homology Balance Sheet, neither Homology nor any of its Subsidiaries has incurred any material Liability for Taxes outside the Ordinary Course of Business or otherwise inconsistent with past custom and practice.

(c) Each of Homology and each of its Subsidiaries has withheld and paid to the appropriate Governmental Authority all material Taxes required to have been withheld and paid in connection with any amounts paid or owing to any employee, independent contractor, creditor, stockholder, or other third party.

(d) There are no Encumbrances for material Taxes (other Encumbrances described in clause (i) of the definition of "Permitted Encumbrances") upon any of the assets of Homology or any of its Subsidiaries.

(e) No deficiencies for a material amount of Taxes with respect to Homology or any of its Subsidiaries have been claimed, proposed or assessed by any Governmental Authority in writing that have not been timely paid in full. There are no pending (or, based on written notice, threatened) material audits, assessments, examinations or other actions for or relating to any Liability in respect of Taxes of Homology or any of its Subsidiaries. Neither Homology nor any of its Subsidiaries has waived any statute of limitations in respect of material Taxes or agreed to any extension of time with respect to a material Tax assessment or deficiency.

(f) Neither Homology nor any of its Subsidiaries is a party to any Tax allocation, Tax sharing or similar agreement (including indemnity arrangements), other than Ordinary Course Agreements.

(g) Neither Homology nor any of its Subsidiaries has been a member of an affiliated group filing a consolidated U.S. federal income Tax Return (other than a group the common parent of which is Homology). Neither Homology nor any of its Subsidiaries has any material Liability for the Taxes of any Person (other than Homology and Merger Sub) under Treasury Regulations Section 1.1502-6 (or any similar provision of state, local, or foreign law), as a transferee or successor, or by Contract (other than an Ordinary Course Agreement).

(h) Neither Homology nor any of its Subsidiaries has distributed stock of another Person, or has had its stock distributed by another Person, in a transaction that was purported or intended to be governed in whole or in part by Section 355 of the Code or Section 361 of the Code.

(i) Neither Homology nor any of its Subsidiaries has entered into any transaction identified as a "reportable transaction" for purposes of Treasury Regulations Section 1.6011-4(b)(2).

(j) Neither Homology nor any of its Subsidiaries will be required to include any material item of income or gain in, or exclude any material item of deduction or loss from, taxable income for any taxable period (or portion thereof) ending after the Closing Date as a result of any: (i) change in, or use of improper, method of accounting for a taxable period ending on or prior to the Closing Date; (ii) "closing agreement" as described in Section 7121 of the Code (or any corresponding or similar provision of state, local or foreign income Tax law) executed on or prior to the Closing Date; (iii) installment sale or open transaction disposition made on or prior to the Closing Date; (iv) prepaid amount, advance payments or deferred revenue received or accrued on or prior to the Closing Date; or (v) intercompany transaction or excess loss amount described in Treasury Regulations under Section 1502 of the Code (or any corresponding or similar provision of state, local or foreign income Tax Law).

(k) Section 4.16(k) of the Homology Disclosure Schedule sets forth the entity classification of Homology and each of its Subsidiaries for U.S. federal income tax purposes. Neither Homology nor any of its Subsidiaries has made an election or taken any other action to change its federal and state income tax classification from such classification.

(l) Neither Homology nor any of its Subsidiaries has taken or knowingly failed to take any action, nor to the Knowledge of Homology, are there any facts or circumstances, in each case, that would reasonably be expected to prevent or impede the Merger from qualifying for the Intended Tax Treatment.

4.17 Employee and Labor Matters; Benefit Plans.

(a) Section 4.17(a) of the Homology Disclosure Schedule contains a complete and accurate list of all Homology employees as of the date of this Agreement, setting forth for each employee: job title; classification as exempt or non-exempt for wage and hour purposes; annual base salary, hourly rate or other rates of compensation; bonus potential; full-time or part-time status; date of hire; business location; status (i.e., active or inactive and if inactive, the type of leave and estimated duration); and any visa or work permit status and the date of expiration, if applicable.

(b) Section 4.17(b) of the Homology Disclosure Schedule contains a complete and accurate list as of the date hereof of all of the independent contractors, consultants, temporary employees, leased employees or other agents employed or used by Homology and classified by Homology as other than employees, or compensated other than through wages paid by Homology through Homology's payroll department ("Homology Contingent Workers"), showing for each Homology Contingent Worker such individual's engagement date, role in the business, work location, and fee or compensation arrangements.

(c) Neither Homology nor any of its Subsidiaries is a party to, bound by the terms of, or has a duty to bargain under, any collective bargaining agreement or other Contract with a labor union, works council or labor organization representing any Homology Associate, and there are no labor unions, works council or labor organizations representing or, to the Knowledge of Homology, purporting to represent or seeking to represent any Homology Associates, including through the filing of a petition for representation election.

(d) Section 4.17(d) of the Homology Disclosure Schedule lists all material Homology Employee Plans.

(e) As applicable with respect to each material Homology Employee Plan, Homology has made available to Q32, true and complete copies of (i) the plan document, including all amendments thereto, and in the case of an unwritten Employee Plan, a written description of all material terms thereof, (ii) all related trust instruments or other funding-related documents and insurance contracts, (iii) the summary plan description and each summary of material modifications thereto, (iv) the financial statements for the most recent year for which such financial statements are available (in audited form, if available or required by ERISA) and, where applicable, annual reports with any Governmental Authority (*e.g.*, Form 5500 and all schedules thereto), (v) the most recent IRS determination or opinion letter, (vi) written results of any required compliance testing for the three most recent plan years, and (vii) all material, non-routine notices, filings or correspondence during the past three years with any Governmental Authority.

(f) Each Homology Employee Plan that is intended to be qualified under Section 401(a) of the Code has received a favorable determination letter or may rely on a favorable opinion letter with respect to such qualified status from the IRS to the effect that such plan is qualified under Section 401(a) of the Code and the related trust is exempt from federal income Taxes under Section 501(a) of the Code. To the Knowledge of Homology, nothing has occurred that would reasonably be expected to cause the loss of the qualified status of any such Homology Employee Plan or the Tax exempt status of any related trust.

(g) Each Homology Employee Plan has been established, maintained and operated in compliance, in all material respects, with its terms and all applicable Laws, including, without limitation, the Code and ERISA. No Legal Proceeding (other than those relating to routine claims for benefits) is pending or, to the Knowledge of Homology, threatened with respect to any Homology Employee Plan. All material payments and/or contributions required to have been made with respect to all Homology Employee Plans have been made in accordance with the terms of the applicable Homology Employee Plan and applicable Law in all material respects and neither the Homology nor any Homology ERISA Affiliate has any material Liability for any such unpaid contributions with respect to any Homology Employee Plan.

(h) Neither Homology, any of its Subsidiaries nor any of their ERISA Affiliates maintains, contributes to or is required to contribute to, or has any Liability with respect to (i) any "employee benefit plan" (within the meaning of Section 3(2) of ERISA) that is or was subject to Title IV or Section 302 of ERISA or Section 412 of the Code, (ii) a Multiemployer Plan, (iii) any Multiple Employer Plan, or (iv) any Multiple Employer Welfare Arrangement.

(i) No Homology Employee Plan provides for medical or other welfare benefits to any service provider beyond termination of service or retirement, other than (i) pursuant to COBRA or an analogous state law requirement (the full cost of which is borne by such Person or such Person's dependents or beneficiaries) or (ii) continuation coverage through the end of the month in which such termination or retirement occurs.

(j) No Homology Employee Plan is subject to any law of a foreign jurisdiction outside of the United States.

(k) Each Homology Employee Plan that constitutes in any part a nonqualified deferred compensation plan within the meaning of Section 409A of the Code has complied in all material respects with Section 409A of the Code, to the extent applicable, and no compensation has been or would reasonably be expected to be includable in the gross income of any Homology Associate as a result of the operation of Section 409A of the Code.

(l) Homology and its Subsidiaries are, and since January 1, 2020 have been, in compliance in all material respects with all applicable Laws respecting labor, employment and employment practices, including terms and conditions of employment, worker classification, tax withholding, unemployment compensation, workers' compensation, prohibited discrimination, harassment, equal employment, fair employment practices, meal and rest periods, work authorization and immigration status, employee safety and health, wages (including overtime wages), pay equity, affirmative action, restrictive covenants, compensation, and hours of work. There are no Legal Proceedings pending or, to the Knowledge of Homology, threatened against Homology or any of its Subsidiaries relating to any labor or employment matters or any Homology Associate. Homology is not a party to a conciliation agreement, consent decree or other agreement or Order with any federal, state, or local agency or Governmental Authority with respect to employment practices.

(m) Since January 1, 2020, (i) Homology has not taken any action which would constitute a "plant closing", "collective dismissal", "group dismissal", "group termination", "mass termination", or "mass layoff" within the meaning of the WARN Act, (ii) issued any written notification of a plant closing or mass layoff required by the WARN Act (nor has Homology or any of its Subsidiaries been under any requirement or obligation to issue any such notification), or (iii) incurred any Liability or obligation under the WARN Act that remains unsatisfied.

(n) Since January 1, 2020, there has never been, nor to the Knowledge of Homology has there been any threat of, any strike, slowdown, work stoppage, lockout, job action, union, organizing activity, question

concerning representation or any similar activity or dispute, affecting Homology or its Subsidiaries. No event has occurred within the past six (6) months, and, to the Knowledge of Homology, no condition or circumstance exists, that would reasonably be expected to give rise to or provide a basis for the commencement of any such strike, slowdown, work stoppage, lockout, job action, union organizing activity, question concerning representation or any similar activity or dispute.

(o) There is no contract, agreement, plan or arrangement to which Homology or any of its Subsidiaries is a party or by which it is bound to make any payment or compensate any Homology Associate for Taxes incurred pursuant to the Code, including, but not limited to, Section 4999 or Section 409A of the Code.

(p) Neither the execution and delivery of this Agreement, the shareholder approval of this Agreement, nor the consummation of the Contemplated Transactions (either alone or in conjunction with any other event, including without limitation, a termination of employment) will result in any (i) payment (including severance, forgiveness of indebtedness or otherwise) or benefit becoming due to Homology Associate, (ii) increase in any benefits or the compensation payable under any Homology Employee Plan, (iii) acceleration of the time of payment, funding or vesting of any such compensation or benefits or any loan forgiveness, (iv) restriction on the right of Homology or any of its Subsidiaries or, after the consummation of Contemplated Transactions, the Surviving Corporation, to merge, amend, terminate or transfer any Homology Employee Plan, or (v) "excess parachute payment" (within the meaning of Section 280G of the Code).

4.18 Environmental Matters. Since January 1, 2020, Homology and each of its Subsidiaries has complied with all applicable Environmental Laws, which compliance includes the possession by Homology of all permits and other Governmental Authorizations required under applicable Environmental Laws and compliance with the terms and conditions thereof, except for any failure to be in compliance that, individually or in the aggregate, would not result in a Homology Material Adverse Effect. Neither Homology nor any of its Subsidiaries has received since January 1, 2020, any written notice or other communication (in writing or otherwise), whether from a Governmental Authority, citizens group, employee or otherwise, that alleges that Homology or any of its Subsidiaries is not in compliance with any Environmental Law, and, to the Knowledge of Homology, there are no circumstances that may prevent or interfere with Homology's or any of its Subsidiaries' compliance with any Environmental Law in the future, except where such failure to comply would not reasonably be expected to have a Homology Material Adverse Effect. To the Knowledge of Homology: (a) no current or prior owner of any property leased or controlled by Homology or any of its Subsidiaries has received since January 1, 2020, any written notice or other communication relating to property owned or leased at any time by Homology or any of its Subsidiaries, whether from a Governmental Authority, citizens group, employee or otherwise, that alleges that such current or prior owner or Homology or any of its Subsidiaries is not in compliance with or violated any Environmental Law relating to such property and (b) neither Homology nor any of its Subsidiaries has any material Liability under any Environmental Law.

4.19 Insurance. Homology has made available to Q32 accurate and complete copies of all material insurance policies and all material self-insurance programs and arrangements relating to the business, assets, liabilities and operations of Homology and its Subsidiaries (including Merger Sub). Each of such insurance policies is in full force and effect and Homology and its Subsidiaries (including Merger Sub) are in compliance in all material respects with the terms thereof. Other than customary end of policy notifications from insurance carriers, since January 1, 2020, neither Homology nor any of its Subsidiaries has received any notice or other communication regarding any actual or possible: (a) cancellation or invalidation of any insurance policy or (b) refusal or denial of any coverage, reservation of rights or rejection of any material claim under any insurance policy. Each of Homology and its Subsidiaries (including Merger Sub) has provided timely written notice to the appropriate insurance carrier(s) of each Legal Proceeding pending against Homology or such Subsidiary for which Homology or such Subsidiary has insurance coverage, and no such carrier has issued a denial of coverage or a reservation of rights with respect to any such Legal Proceeding, or informed Homology or any of its Subsidiaries of its intent to do so.

4.20 Transactions with Affiliates. Except as set forth in the Homology SEC Documents filed prior to the date of this Agreement, since the date of Homology's last proxy statement filed in 2022 with the SEC, no event has occurred that would be required to be reported by Homology pursuant to Item 404 of Regulation S-K promulgated by the SEC. Section 4.20 of the Homology Disclosure Schedule identifies each Person who is (or who may be deemed to be) an Affiliate of Homology as of the date of this Agreement.

4.21 No Financial Advisors. Except as set forth on Section 4.21 of the Homology Disclosure Schedule, no broker, finder or investment banker is entitled to any brokerage fee, finder's fee, opinion fee, success fee, transaction fee or other fee or commission in connection with the Contemplated Transactions based upon arrangements made by or on behalf of Homology.

4.22 Valid Issuance; No Bad Actor. The Homology Common Stock to be issued in the Merger will, when issued in accordance with the provisions of this Agreement, be validly issued, fully paid and nonassessable. To the Knowledge of Homology, as of the date of this Agreement and as of the Closing, no "bad actor" disqualifying event described in Rule 506(d)(l)(i)-(viii) of the Securities Act (a "**Disqualifying Event**") is applicable to Homology or, to Homology's Knowledge, any Homology Covered Person, except for a Disqualifying Event as to which Rule 506(d)(2)(ii-iv) or (d)(3) of the Securities Act is applicable.

4.23 Privacy and Data Security.

(a) Homology and its Subsidiaries have complied with all applicable Privacy Laws and the applicable terms of any Homology Contracts relating to privacy, security, collection or use of Personal Information of any individuals (including clinical trial participants, patients, patient family members, caregivers or advocates, physicians and other health care professionals, clinical trial investigators, researchers, pharmacists) that interact with Homology or any of its Subsidiaries in connection with the operation of Homology's and its Subsidiaries' business, except for such noncompliance as has not had, and would not reasonably be expected to have, individually or in the aggregate, a Homology Material Adverse Effect. To the Knowledge of Homology, Homology has implemented and maintains reasonable written policies and procedures, satisfying the requirements of applicable Privacy Laws and Homology Contracts, concerning the privacy, security, collection and use of Personal Information ("**Homology Privacy Policies**") and has complied with the same, except for such noncompliance as has not to the Knowledge of Q32 had, and would not reasonably be expected to have, individually or in the aggregate, a Q32 Material Adverse Effect. To the Knowledge of Homology, as of the date hereof, no claims have been asserted or threatened against Homology by any Person alleging a violation of Privacy Laws, Privacy Policies and/or the applicable terms of any Homology Contracts relating to privacy, security, collection or use of Personal Information of any individuals and Homology has not received written notice of any of the same. To the Knowledge of Homology, there have been no data security incidents, personal data breaches or other adverse events or incidents related to Personal Information or Homology data in the custody or control of Homology or any service provider acting on behalf of Homology, in each case where such incident, breach or event would result in a notification obligation to any Person under applicable law or pursuant to the terms of any Homology Contract.

(b) The information technology assets and equipment of Homology and its Subsidiaries (collectively, "**Homology IT Systems**") are adequate for, and operate and perform in all material respects as required in connection with the operation of the business of Homology and its Subsidiaries as currently conducted, and to the Knowledge of Homology, free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. Homology and its Subsidiaries have implemented and maintain commercially reasonable physical, technical and administrative safeguards to protect Personal Information processed by or on behalf of Homology and its Subsidiaries, any other material confidential information and the integrity and security of Homology IT Systems used in connection with their businesses, and during the past three years, there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or liability or the duty to notify any other Person.

4.24 No Other Representations or Warranties. Homology hereby acknowledges and agrees that, except for the representations and warranties contained in this Agreement, neither Homology nor any of its Subsidiaries nor any other person on behalf of Homology or its Subsidiaries makes any express or implied representation or warranty with respect to Homology or its Subsidiaries or with respect to any other information provided to Q32, its stockholders or any of its Affiliates in connection with the Contemplated Transactions, and (subject to the express representations and warranties of Homology set forth in Article IV (in each case as qualified and limited by the Homology Disclosure Schedule)) none of Q32, its Representatives, stockholders or members, has relied on any such information (including the accuracy or completeness thereof).

ARTICLE V
COVENANTS

5.1 Conduct of Q32's Business. From the date hereof until the earlier of the Effective Time and the termination of this Agreement in accordance with Article VIII (the "**Pre-Closing Period**"), except as set forth on Section 5.1 of the Q32 Disclosure Schedule, as required by applicable Law, as otherwise provided by this Agreement and the Contemplated Transactions or with Homology's prior written consent (not to be unreasonably withheld, conditioned or delayed), Q32 shall, and shall cause its Subsidiaries to, use their commercially reasonable efforts to conduct its operations in the Ordinary Course of Business and to preserve intact the present business organizations and goodwill of the business and the present relationships of the business with material customers and suppliers. Without limiting the generality of the foregoing, during the Pre-Closing Period, except as set forth in Section 5.1 of the Q32 Disclosure Schedule, as required by applicable Law, as otherwise specifically provided by this Agreement and the Contemplated Transactions or with Homology's prior written consent (not to be unreasonably withheld, conditioned or delayed), Q32 shall not, and shall cause its Subsidiaries not to:

(a) sell, lease, license or otherwise dispose of any material assets of Q32, or in either case, any interests therein, except (i) pursuant to existing Contracts, (ii) for sales or licensing of products to customers or (iii) otherwise in the Ordinary Course of Business;

(b) take any action with respect to any equity interests of Q32 or any of its Subsidiaries, including any issuance, sale, transfer, redemption, repurchase, recapitalization, adjustment, split, combination, reclassification, dividend, distribution or any other action in respect thereof;

(c) create, incur, assume, guarantee or repay (other than any mandatory repayments) any indebtedness, other than in the Ordinary Course of Business or as approved by the Q32 Board;

(d) issue, deliver, sell, grant, pledge, transfer, subject to any Encumbrance or dispose of any Q32 Capital Stock or the securities of any Subsidiary of Q32;

(e) create or otherwise incur any Encumbrance on any material asset of Q32 or any of its Subsidiaries, other than Permitted Encumbrances;

(f) make any loans, advances or capital contributions to, or investments in, any Person other than Q32;

(g) adversely amend or otherwise adversely modify in any material respect or terminate (excluding any expiration in accordance with its terms) any Contract listed in Section 3.12 of the Q32 Disclosure Schedule, other than any amendment or modification entered into in the Ordinary Course of Business and containing terms not materially less favorable to Q32 than the terms of such Contract in effect as of the date of this Agreement;

(h) enter into any Contract that would be required to be disclosed in Section 3.12 of the Q32 Disclosure Schedule if such Contract were in effect as of the date of this Agreement, other than any such Contract entered into in the Ordinary Course of Business;

(i) except as required by any Q32 Employee Plan or as required by applicable Law, (i) increase any salary, wage or other compensation or benefit to, or enter into or amend any employment, retention, change-in-control, termination or severance agreement with, any Q32 Associate, other than annual increases in base compensation in the Ordinary Course of Business with respect to employees whose annual base compensation is less than $500,000 and provided that such increases do not, individually or in the aggregate, result in any material increase in costs, obligations or liabilities for Q32 and its Subsidiaries, (ii) grant or pay any bonuses to any Q32 Associate, other than in the Ordinary Course of Business, or (iii) establish, enter into or adopt any new material Q32 Employee Plan or any plan, program, policy, agreement or arrangement that would be a material Q32 Employee Plan if it was in effect on the date hereof or amend or modify, in a manner that would, individually or in the aggregate, materially increase costs, obligations or liabilities for Q32 and its Subsidiaries or the Surviving Corporation, any existing Q32 Employee Plan or accelerate the vesting of any compensation (including stock options, restricted stock, restricted stock units, phantom units, warrants, other shares of capital stock or rights of any kind to acquire any shares of capital stock or equity-based awards) for the benefit of any Q32 Associate other than in the Ordinary Course of Business;

(j) adopt, enter into, amend or terminate any collective bargaining agreement or Contract with any labor union, works council or labor organization;

(k) settle any material Legal Proceeding involving Q32 or any of its Subsidiaries or relating to the transactions contemplated by this Agreement;

(l) make or change any material Tax election, change any annual Tax accounting period, enter into any closing agreement with a Governmental Authority with respect to material Taxes or settle any Tax claim with respect to material Taxes, in each case, except if such action would not reasonably be expected to have a material and adverse effect on Q32 following the Closing;

(m) take any action, or knowingly fail to take any action, where such action or failure to act would reasonably be expected to prevent the Merger from qualifying for the Intended Tax Treatment;

(n) make any material change in any method of financial accounting or financial accounting practice of Q32 or any of its Subsidiaries, except for any such change required by reason of a change in GAAP or other applicable financial accounting standards;

(o) other than in connection with actions contemplated by this Agreement, adopt, approve, consent to or propose any change in the Organizational Documents of Q32 or any of its Subsidiaries; or

(p) agree or commit to do any of the foregoing.

Notwithstanding the generality of the foregoing, nothing set forth in this Section 5.1 shall restrict Q32's rights to effectuate the Concurrent Financing upon the terms set forth in the Subscription Agreement on the date hereof. Nothing contained in this Agreement shall give Homology, directly or indirectly, the right to control or direct the operations of Q32 prior to the Effective Time. Prior to the Effective Time, Q32 shall exercise, consistent with the terms and conditions of this Agreement, complete unilateral control and supervision over its business operations.

5.2 Conduct of Homology's Business. During the Pre-Closing Period, except as set forth on Section 5.2 of the Homology Disclosure Schedule, as required by applicable Law, as otherwise provided by this Agreement and the Contemplated Transactions or with Q32's prior written consent (not to be unreasonably withheld, conditioned or delayed), Homology shall, and shall cause its Subsidiaries to, use their commercially reasonable efforts to conduct its operations in the Ordinary Course of Business and to preserve intact the present business organizations and goodwill of the business and the present relationships of the business with material customers and suppliers. Without limiting the generality of the foregoing, during the Pre-Closing Period, except as set forth

in Section 5.2 of the Homology Disclosure Schedule, as required by applicable Law, as otherwise specifically provided by this Agreement and the Contemplated Transactions or with Q32's prior written consent (not to be unreasonably withheld, conditioned or delayed), Homology shall not, and shall cause its Subsidiaries not to:

(a) sell, lease, license or otherwise dispose of any material assets of Homology, or in either case, any interests therein, except (i) pursuant to existing Contracts, (ii) for sales or licensing of products to customers or (iii) otherwise in the Ordinary Course of Business;

(b) except for the issuance of securities under this Agreement, take any action with respect to any equity interests of Homology or any of its Subsidiaries, including any issuance, sale, transfer, redemption, repurchase, recapitalization, adjustment, split, combination, reclassification, dividend, distribution or any other action in respect thereof;

(c) create, incur, assume, guarantee or repay (other than any mandatory repayments) any indebtedness;

(d) issue, deliver, sell, grant, pledge, transfer, subject to any Encumbrance or dispose of any Homology Common Stock or the securities of any Subsidiary of Homology;

(e) create or otherwise incur any Encumbrance on any material asset of Homology, other than Permitted Encumbrances;

(f) make any loans, advances or capital contributions to, or investments in, any Person other than Homology;

(g) adversely amend or otherwise adversely modify in any material respect or terminate (excluding any expiration in accordance with its terms) any Contract listed in Section 4.13 of the Homology Disclosure Schedule, other than any amendment or modification entered into in the Ordinary Course of Business and containing terms, not materially less favorable to Homology than the terms of such Contract in effect as of the date of this Agreement;

(h) enter into any Contract that would be required to be disclosed in Section 4.13 of the Homology Disclosure Schedule if such Contract were in effect as of the date of this Agreement, other than any such Contract entered into in the Ordinary Course of Business;

(i) except as required by any Homology Employee Plan, applicable Law or this Agreement, (i) increase any salary, wage or other compensation or benefit to, or enter into or amend any employment, retention, change-in-control, termination or severance agreement with, any Homology Associate, other than as set forth in Section 5.2(i)of the Homology Disclosure Schedule and provided that such increases do not, individually or in the aggregate, result in any material increase in costs, obligations or liabilities for Homology and its Subsidiaries, (ii) grant or pay any bonuses to any Homology Associate, (iii) establish, enter into or adopt any new Homology Employee Plan or any plan, program, policy, agreement or arrangement that would be a material Homology Employee Plan if it was in effect on the date hereof or amend or modify, in a manner that would, individually or in the aggregate, materially increase costs, obligations or liabilities for Homology and its Subsidiaries or the Surviving Corporation, any existing Homology Employee Plan or accelerate the vesting of any compensation (including stock options, restricted stock, restricted stock units, phantom units, warrants, other shares of capital stock or rights of any kind to acquire any shares of capital stock or equity-based awards) for the benefit of any Homology Associate, (iv) grant to any Homology Associate any right to receive, or pay to any Homology Associate, any severance, change in control, transaction, retention, termination or similar compensation or benefits or increases therein, (v) take any action to accelerate any payment or benefit, or the funding of any payment or benefit, payable or to be provided to any Homology Associate, (vi) grant any new long-term incentive or equity-based awards, or amend or modify the terms of any such outstanding awards under any Homology Employee Plan or (vii) hire, terminate (other than for cause), promote or change the employment status or title of any Homology Associate;

(j) adopt, enter into, amend or terminate any collective bargaining agreement or Contract with any labor union, works council or labor organization;

(k) settle any material Legal Proceeding involving Homology or relating to the transactions contemplated by this Agreement;

(l) make or change any material Tax election, change any annual Tax accounting period, enter into any closing agreement with a Governmental Authority with respect to material Taxes or settle any Tax claim with respect to material Taxes, in each case, except if such action would not reasonably be expected to have a material and adverse effect on Homology following the Closing;

(m) take any action, or knowingly fail to take any action, where such action or failure to act would reasonably be expected to prevent the Merger from qualifying for the Intended Tax Treatment;

(n) make any material change in any method of financial accounting or financial accounting practice of Homology, except for any such change required by reason of a change in GAAP or other applicable financial accounting standards;

(o) other than in connection with actions contemplated by this Agreement, adopt, approve, consent to or propose any change in the Organizational Documents of Homology; or

(p) agree or commit to do any of the foregoing.

Notwithstanding the generality of the foregoing, nothing set forth in this Section 5.2 shall restrict Homology's right to (i) effectuate any Legacy Asset Disposition or (ii) encumber, abandon or not file, prosecute, maintain, defend, or enforce any Homology Legacy IP Rights ("**Abandoned Homology Legacy IP Rights**"). Nothing contained in this Agreement shall give Q32, directly or indirectly, the right to control or direct the operations of Homology prior to the Effective Time. Prior to the Effective Time, Homology shall exercise, consistent with the terms and conditions of this Agreement, complete unilateral control and supervision over its business operations.

5.3 Access and Investigation.

(a) Subject to the terms of the Confidentiality Agreement, which the Parties agree will continue in full force following the date of this Agreement, during the Pre-Closing Period, upon reasonable notice, Homology, on the one hand, and Q32, on the other hand, shall and shall use commercially reasonable efforts to cause such Party's Representatives to: (i) provide the other Party and such other Party's Representatives with reasonable access during normal business hours to such Party's Representatives, personnel and assets and to all existing books, records, Tax Returns, work papers and other documents and information relating to such Party and its Subsidiaries, (ii) provide the other Party and such other Party's Representatives with such copies of the existing books, records, Tax Returns, work papers, product data, and other documents and information relating to such Party and its Subsidiaries, and with such additional financial, operating and other data and information regarding such Party and its Subsidiaries as the other Party may reasonably request, (iii) permit the other Party's officers and other employees to meet, upon reasonable notice and during normal business hours, with the chief financial officer and other officers and managers of such Party responsible for such Party's financial statements and the internal controls of such Party to discuss such matters as the other Party may deem reasonably necessary or appropriate, and (iv) provide the other Party with copies, when available, of unaudited financial statements or management accounts, and communications sent by or on behalf of such Party to its stockholders or any material notice, report or other document filed with or sent to or received from any Governmental Authority in connection with the Contemplated Transactions. Any investigation conducted by either Homology or Q32 pursuant to this Section 5.3 shall be conducted in such manner as not to interfere unreasonably with the conduct of the business of the other Party.

(b) Notwithstanding anything herein to the contrary in this Section 5.3, no access or examination contemplated by this Section 5.3 shall be permitted to the extent that it would require any Party or its Subsidiaries to waive the attorney-client privilege or attorney work product privilege, or violate any applicable Law; provided, that such Party or its Subsidiary (i) shall be entitled to withhold only such information that may not be provided without causing such violation or waiver, (ii) shall provide to the other Party all related information that may be provided without causing such violation or waiver (including, to the extent permitted, redacted versions of any such information) and (iii) shall enter into such effective and appropriate joint-defense agreements or other protective arrangements as may be reasonably requested by the other Party in order that all such information may be provided to the other Party without causing such violation or waiver.

5.4 No Solicitation.

(a) Each of Homology and Q32 agrees that, during the Pre-Closing Period, neither it nor any of its Subsidiaries shall, nor shall it or any of its Subsidiaries authorize any of its Representatives to, directly or indirectly: (i) solicit, initiate or knowingly encourage, induce or facilitate the communication, making, submission or announcement of any Acquisition Proposal or Acquisition Inquiry or take any action otherwise inconsistent with past practice that could reasonably be expected to lead to an Acquisition Proposal or Acquisition Inquiry, (ii) furnish any non-public information regarding such Party to any Person (other than Q32 or Homology) in connection with or in response to an Acquisition Proposal or Acquisition Inquiry, (iii) engage in discussions or negotiations with any Person with respect to any Acquisition Proposal or Acquisition Inquiry, (iv) approve, endorse or recommend any Acquisition Proposal (subject to Section 5.9), (v) execute or enter into any letter of intent or any Contract contemplating or otherwise relating to any Acquisition Transaction or (vi) publicly propose to do any of the foregoing; provided, however, that, notwithstanding anything contained in this Section 5.3(a) and subject to compliance with this Section 5.3(a), prior to the approval of this Agreement by Homology's stockholders (i.e., the Required Homology Stockholder Vote), Homology may furnish non-public information regarding Homology and its Subsidiaries to, and enter into discussions or negotiations with, any Person in response to a bona fide written Acquisition Proposal by Homology which the Homology Board determines in good faith, after consultation with Homology's financial advisors and outside legal counsel, constitutes, or is reasonably likely to result in, a Superior Offer (and is not withdrawn) if: (A) neither Homology nor any Representative of Homology shall have breached this Section 5.3(a) in any material respect, (B) the Homology Board concludes in good faith based on the advice of outside legal counsel, that the failure to take such action would reasonably be expected to be inconsistent with the fiduciary duties of the Homology Board under applicable Law, (C) as promptly as possible after (and in any event within forty-eight hours of) initially furnishing any such non-public information to, or entering into discussions with, such Person, Homology gives Q32 written notice of the identity of such Person to Q32, and of Homology's intention to furnish non-public information to, or enter into discussions with, such Person, (D) Homology receives from such Person an executed Acceptable Confidentiality Agreement and (E) as promptly as possible after (and in any event within forty-eight hours of) furnishing any such non-public information to such Person, Homology furnishes such non-public information to Q32 (to the extent such information has not been previously furnished by Homology to Q32). Notwithstanding anything to the contrary set forth in this Agreement, Homology and its Representatives may, in any event (without the Homology Board having to make a determination in clause (B) of the preceding sentence), contact any person to (i) seek to clarify and understand the terms and conditions of any Acquisition Proposal made by such Person solely to determine whether such Acquisition Proposal constitutes, or is reasonably likely to result in, a Superior Offer and (ii) inform such Person that has made or, to the knowledge of Homology is considering making an Acquisition Proposal. Without limiting the generality of the foregoing, Homology acknowledges and agrees that, in the event any Representative of Homology takes any action that, if taken by Homology, would constitute a breach of this Section 5.3(a) by Homology, the taking of such action by such Representative shall be deemed to constitute a breach of this Section 5.3(a) by Homology for purposes of this Agreement.

(b) If any Party or any Representative of such Party receives an Acquisition Proposal or Acquisition Inquiry at any time during the Pre-Closing Period, then such Party shall promptly (and in no event later than one

Business Day after such Party becomes aware of such Acquisition Proposal or Acquisition Inquiry) advise the other Party orally and in writing of such Acquisition Proposal or Acquisition Inquiry (including the identity of the Person making or submitting such Acquisition Proposal or Acquisition Inquiry, and provide a copy of the Acquisition Proposal or Acquisition Inquiry, of if the Acquisition Proposal or Acquisition Inquiry is not written, the terms thereof). Such Party shall keep the other Party reasonably informed with respect to the status and terms of any such Acquisition Proposal or Acquisition Inquiry and any material modification or material proposed modification thereto. In addition to the foregoing, each Party shall provide the other Party with at least forty-eight hours written notice of a meeting of its board of directors (or any committee thereof) at which its board of directors (or any committee thereof) is reasonably expected to consider an Acquisition Proposal or Acquisition Inquiry it has received.

(c) Each Party shall immediately cease and cause to be terminated any existing discussions, negotiations and communications with any Person that relate to any Acquisition Proposal or Acquisition Inquiry as of the date of this Agreement and request the destruction or return of any non-public information provided to such Person.

5.5 Notification of Certain Matters.

(a) During the Pre-Closing Period, each of Q32, on the one hand, and Homology, on the other hand, shall promptly notify the other (and, if in writing, furnish copies of) if any of the following occurs: (i) any notice or other communication is received from any Person alleging that the Consent of such Person is or may be required in connection with any of the Contemplated Transactions, (ii) any Legal Proceeding against or involving or otherwise affecting such Party or its Subsidiaries is commenced, or, to the Knowledge of such Party, threatened against such Party or, to the Knowledge of such Party, any director, officer or Key Employee of such Party, (iii) such Party becomes aware of any inaccuracy in any representation or warranty made by such Party in this Agreement or (iv) the failure of such Party to comply with any covenant or obligation of such Party; in each case that could reasonably be expected to make the timely satisfaction of any of the conditions set forth in Article VI impossible or materially less likely. No such notice shall be deemed to supplement or amend the Q32 Disclosure Schedule or the Homology Disclosure Schedule for the purpose of (A) determining the accuracy of any of the representations and warranties made by Q32 or Homology in this Agreement or (B) determining whether any condition set forth in Article VI has been satisfied. Any failure by either Party to provide notice pursuant to this Section 5.5 shall not be deemed to be a breach for purposes of Section 6.2(b) or 6.3(b), as applicable, unless such failure to provide such notice was knowing and intentional.

(b) During the Pre-Closing Period, Homology shall use reasonable best efforts to consult with Q32 during the negotiation process for, and prior to taking any material action with respect to, any amendment to, sublicense or the potential early termination of the Homology Lease, and shall consider any input received from Q32 in good faith prior to taking any such action.

(c) During the Pre-Closing Period, Homology shall provide to Q32 an updated list of Abandoned Homology Legacy IP Rights on a monthly basis starting from December 1, 2023, with the final such list to be delivered within three (3) days preceding Closing.

5.6 Legacy Asset Disposition.

(a) Prior to the Closing Date, Homology shall be entitled, but under no obligation, to sell, transfer, license, assign or otherwise divest any or all of the assets and rights primarily relating to Homology's HMI-103 (Adult/Pediatric PKU), HMI-203 (MPS II (Hunter Syndrome)), HMI-204 (MLD), Capsids and AAVHSC Platform (the "**Legacy Assets**"), including any equity interests held directly or indirectly by Homology in Oxford Biomedica Solutions, LLC or its affiliates (the "**Oxford Assets**") in a transaction or series of transactions (the "**Legacy Asset Disposition**"), provided that Homology as promptly as practicable thereafter notify Q32 of any such Legacy Asset Disposition. Each Party acknowledges that Homology may, in contemplation of the Legacy Asset Disposition, (a) establish one or more Subsidiaries to hold the Legacy Assets, (b) transfer to any such Subsidiary

any or all of the Legacy Assets and the liabilities and obligations related thereto and (c) take such other steps that are reasonably necessary to prepare for the Legacy Asset Disposition. For clarity, if Homology transfers the Legacy Assets to one or more Subsidiaries, the terms of this Section 0 shall apply to such Subsidiaries in addition to Homology. Each Party further acknowledges that Homology may not be successful in completing, or may determine not to proceed, with the Legacy Asset Disposition. Notwithstanding the foregoing, Homology may not enter into any agreement with respect to the Legacy Asset Disposition that would result in a continuing obligation or liability without the prior written consent of Q32 (such consent shall not be unreasonably withheld, conditioned or delayed); provided, further, that Homology shall provide Q32 with a copy of any agreement with respect to an Legacy Asset Disposition that would be reasonably likely to result in a continuing obligation or liability of either Homology or Q32 on or after the Effective Time at least five Business Days prior to entry into such agreement.

(b) For the avoidance of doubt, any sale, transfer, license, assignment or other divestiture of Legacy Assets on or after the Closing Date shall be governed by the terms and conditions of the CVR Agreement.

5.7 Registration Statement; Proxy Statement.

(a) As promptly as practicable (but in any event, no later than twenty (20) Business Days) after the date of this Agreement, (i) Homology, in cooperation with Q32, shall prepare and file with the SEC a proxy statement relating to the Homology Stockholder Meeting to be held in connection with the Merger (together with any amendments thereof or supplements thereto, the "**Proxy Statement**") and (ii) Homology, in cooperation with Q32, shall prepare and file with the SEC a registration statement on Form S-4 (the "**Form S-4**"), in which the Proxy Statement shall be included as a part (the Proxy Statement and the Form S-4, collectively, the "**Registration Statement**"), in connection with the registration under the Securities Act of the shares of Homology Common Stock to be issued by virtue of the Merger. Each of Homology and Q32 shall use their commercially reasonable efforts to respond promptly to any comments of the SEC or its staff and to cause the Registration Statement to become effective as promptly as practicable, and shall take all or any action required under any applicable federal, state, securities and other Laws in connection with the issuance of shares of Homology Common Stock pursuant to the Merger. Each of the Parties shall furnish all information concerning itself and their Affiliates, as applicable, to the other Parties as the other Parties may reasonably request in connection with such actions and the preparation of the Registration Statement and Proxy Statement.

(b) Homology covenants and agrees that the Registration Statement (and the letter to stockholders, notice of meeting and form of proxy included therewith) will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make the statements made therein not misleading. Q32 covenants and agrees that the information supplied by or on behalf of Q32 and its Subsidiaries to Homology for inclusion in the Registration Statement (including the Q32 Financials) will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make such information, in light of the circumstances under which they were made, not misleading. Notwithstanding the foregoing, Homology makes no covenant, representation or warranty with respect to statements made in the Registration Statement (and the letter to stockholders, notice of meeting and form of proxy included therewith), if any, based on information provided by Q32 or its Subsidiaries or any of their Representatives for inclusion therein. Q32 and its legal counsel shall be given reasonable opportunity to review and comment on the Registration Statement, including all amendments and supplements thereto, prior to the filing thereof with the SEC, and on the response to any comments on the SEC prior to the filing thereof with the SEC; *provided*, *however*, that the foregoing shall not apply to any amendment to the Registration Statement pertaining to a Homology Board Adverse Recommendation Change. Each of the Parties shall use commercially reasonable efforts to cause the Registration Statement to comply with the applicable rules and regulations promulgated by the SEC, to respond promptly to any comments of the SEC or its staff and to have the Registration Statement declared effective under the Securities Act as promptly as practicable after it is filed with the SEC.

(c) Each of the Parties shall use commercially reasonable efforts to cause the Proxy Statement to be mailed to Homology's stockholders as promptly as practicable after the Registration Statement is declared effective under the Securities Act. If Homology, Merger Sub or Q32 become aware of any event or information that, pursuant to the Securities Act or the Exchange Act, should be disclosed in an amendment or supplement to the Registration Statement or Proxy Statement, as the case may be, then such Party, as the case may be, shall promptly inform the other Parties thereof and shall cooperate with such other Parties in filing such amendment or supplement with the SEC and, if appropriate, in mailing such amendment or supplement to the Homology stockholders.

(d) Q32 shall reasonably cooperate with Homology and provide, and cause its Representatives to provide, Homology and its Representatives, with all true, correct and complete information regarding (i) Q32 and its Subsidiaries and (ii) the 2023 Plans that is, in each case, required by Law to be included in the Registration Statement or reasonably requested by Homology to be included in the Registration Statement. Q32 will use commercially reasonable efforts to cause Q32's independent accounting firm to deliver any consent that Homology is required to file with the SEC with respect to the inclusion of the independent accounting firm's opinion on the audited financial statements of Q32 in any filing of the Registration Statement with the SEC.

(e) As promptly as practicable following the date of this Agreement and no later than fifteen (15) Business Days after the date of this Agreement, Q32 shall deliver to Homology financial statements (including any related notes thereto) of Q32 and its consolidated Subsidiaries as of and for the fiscal years ended December 31, 2022 and 2021, with respect to which the PCAOB Auditor has substantially completed its audit work in accordance with the standards of the PCAOB, subject to providing the PCAOB Auditor's report thereon for inclusion in the Registration Statement. As promptly as practicable following the date of this Agreement and no later than fifteen (15) Business Days after the date of this Agreement, Q32 shall deliver to Homology unaudited interim financial statements (including any related notes thereto) of Q32 and its consolidated Subsidiaries as of and for the nine months ended September 30, 2023 and 2022, with respect to which the PCAOB Auditor has substantially completed its review in accordance with the procedures specified by the PCAOB in AS 4105, *Reviews of Interim Financial Information* (the "**interim review procedures**"), for inclusion in the Registration Statement. All such financial statements included in the Registration Statement at the time of filing shall comply as to form in all material respects, shall be prepared in accordance with GAAP (as modified by the rules and regulations of the SEC) applied on a consistent basis throughout the periods involved, shall fairly present in all material respects the consolidated financial position at the date thereof and the results of its operations and cash flows as of and for the periods therein indicated and shall comply in all material respects with the applicable accounting requirements and with the rules and regulations of the SEC, the Exchange Act and the Securities Act applicable to a registrant, in effect as of the respective dates thereof.

5.8 Q32 Stockholder Written Consent.

(a) Promptly after the Registration Statement has been declared effective under the Securities Act, and in any event no later than two (2) Business Days thereafter, Q32 shall prepare, with the cooperation of Homology, and cause to be mailed to its stockholders an information statement, which shall include a copy of the Proxy Statement (the "**Information Statement**"), and the Q32 Stockholder Written Consent, in order to solicit the approval of Q32's stockholders, including but not limited to Q32's stockholders sufficient for the Required Q32 Stockholder Vote in lieu of a meeting pursuant to Section 228 of Delaware Law, for purposes of (i) adopting and approving this Agreement and the Contemplated Transactions, and (ii) acknowledging that the approval given thereby is irrevocable. Q32 shall use its reasonable best efforts to cause Q32's stockholders sufficient for the Required Q32 Stockholder Vote to execute and deliver to Q32 the Q32 Stockholder Written Consent promptly following delivery thereof, and in any event no later than fifteen (15) days after the Registration Statement has been declared effective. Promptly following receipt of the duly executed Q32 Stockholder Written Consent, Q32 shall deliver a copy of the duly executed Q32 Stockholder Written Consent to Homology. Under no circumstances shall Q32 assert that any other approval or consent is necessary by its stockholders to approve this Agreement and the Contemplated Transactions.

(b) Promptly following receipt of the Required Q32 Stockholder Vote, Q32 shall prepare and mail a notice to every stockholder of Q32 that did not execute the Q32 Stockholder Written Consent. Such notice shall (i) be a statement to the effect that the Q32 Board determined that the Merger is advisable in accordance with Section 251(b) of Delaware Law and in the best interests of the stockholders of Q32 and approved and adopted this Agreement, the Merger and the other Contemplated Transactions, and (ii) provide the stockholders of Q32 to whom it is sent with notice of the actions taken in the Q32 Stockholder Written Consent, including the adoption and approval of this Agreement, the Merger and the other Contemplated Transactions in accordance with Section 228(e) of Delaware Law and Q32's Organizational Documents.

(c) Q32 agrees that: (i) the Q32 Board shall recommend that Q32's stockholders vote to adopt and approve this Agreement and the Contemplated Transactions and shall use commercially reasonable efforts to solicit such approval within the time set forth in Section 5.8(a) (the recommendation of the Q32 Board that Q32's stockholders vote to adopt and approve this Agreement being referred to as the "**Q32 Board Recommendation**") and (ii) the Q32 Board Recommendation shall not be withdrawn or modified (and the Q32 Board shall not publicly propose to withdraw or modify the Q32 Board Recommendation) in a manner adverse to Homology, and no resolution by the Q32 Board or any committee thereof to withdraw or modify the Q32 Board Recommendation in a manner adverse to Homology or to adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal shall be adopted or proposed.

(d) Q32's obligation to solicit the consent of its stockholders to sign the Q32 Stockholder Written Consent in accordance with Section 5.8(a) shall not be limited or otherwise affected by the commencement, disclosure, announcement or submission of any Superior Offer or other Acquisition Proposal.

5.9 Homology Stockholder Meeting.

(a) Homology shall take all action necessary under applicable Law to call, give notice of and hold a meeting of the holders of Homology Common Stock to consider and vote to approve this Agreement and the Contemplated Transactions, including the issuance of the shares of Homology Common Stock to the stockholders of Q32 pursuant to the terms of this Agreement and the Charter Amendment Proposal (collectively, the "**Homology Stockholder Matters**" and such meeting, the "**Homology Stockholder Meeting**"). The Homology Stockholder Meeting shall be held as promptly as practicable after the Registration Statement is declared effective under the Securities Act, and in any event no later than forty-five (45) days after the effective date of the Registration Statement. Homology shall take reasonable measures to ensure that all proxies solicited in connection with the Homology Stockholder Meeting are solicited in compliance with all applicable Law. Notwithstanding anything to the contrary contained herein, if on the date of the Homology Stockholder Meeting, or a date preceding the date on which the Homology Stockholder Meeting is scheduled, Homology reasonably believes that (i) it will not receive proxies sufficient to obtain the Required Homology Stockholder Vote, whether or not a quorum would be present or (ii) it will not have sufficient shares of Homology Common Stock represented (whether in person or by proxy) to constitute a quorum necessary to conduct the business of the Homology Stockholder Meeting, Homology may postpone or adjourn, or make one or more successive postponements or adjournments of, the Homology Stockholder Meeting as long as the date of the Homology Stockholder Meeting is not postponed or adjourned more than an aggregate of thirty (30) calendar days in connection with any postponements or adjournments.

(b) Homology agrees that, subject to Section 5.9(c): (i) the Homology Board shall recommend that the holders of Homology Common Stock vote to approve the Homology Stockholder Matters and shall use commercially reasonable efforts to solicit such approval within the timeframe set forth in Section 5.9(a) above, (ii) the Proxy Statement shall include a statement to the effect that the Homology Board recommends that Homology's stockholders vote to approve the Homology Stockholder Matters (the recommendation of the Homology Board being referred to as the "**Homology Board Recommendation**") and (iii) the Homology Board Recommendation shall not be withheld, amended, withdrawn or modified (and the Homology Board shall not publicly propose to withhold, amend, withdraw or modify the Homology Board Recommendation) in a manner

adverse to Q32, and no resolution by the Homology Board or any committee thereof to withdraw or modify the Homology Board Recommendation in a manner adverse to Q32 or to adopt, approve or recommend (or publicly propose to adopt, approve or recommend) any Acquisition Proposal shall be adopted or proposed (the actions set forth in the foregoing clause (iii), collectively, a "**Homology Board Adverse Recommendation Change**").

(c) Notwithstanding anything to the contrary contained in Section 5.9(b), and subject to compliance with Section 5.4 and Section 5.9, at any time prior to the approval of Homology Stockholder Matters by the Required Homology Stockholder Vote, Homology receives a bona fide written Superior Offer, the Homology Board may make a Homology Board Adverse Recommendation Change if, but only if, in the receipt of and on account of such Superior Offer, (i) the Homology Board determines in good faith, after consultation with its outside legal counsel, that the failure to make a Homology Board Adverse Recommendation Change would reasonably be expected to be inconsistent with its fiduciary duties under applicable Law, (ii) Homology has, and has caused its financial advisors and outside legal counsel to, during the Notice Period, negotiate with Q32 in good faith to make such adjustments to the terms and conditions of this Agreement so that such Acquisition Proposal ceases to constitute a Superior Offer and (iii) if after Q32 shall have delivered to Homology a written offer to alter the terms or conditions of this Agreement during the Notice Period (or if Q32 declines to do so), the Homology Board shall have determined in good faith, after consultation with its outside legal counsel, that the failure to withhold, amend, withdraw or modify the Homology Board Recommendation would reasonably be expected to be inconsistent with its fiduciary duties under applicable Law (after taking into account such alterations of the terms and conditions of this Agreement, if any); *provided* that (x) Q32 receives written notice from Homology confirming that the Homology Board has determined to change its recommendation during the Notice Period, which notice shall include a description in reasonable detail of the reasons for such Homology Board Adverse Recommendation Change, and written copies of any relevant proposed transaction agreements with any party making a potential Superior Offer, (y) during any Notice Period, Q32 shall be entitled to deliver to Homology one or more counterproposals to such Acquisition Proposal and Homology will, and cause its Representatives to, negotiate with Q32 in good faith (to the extent Q32 desires to negotiate) to make such adjustments in the terms and conditions of this Agreement so that the applicable Acquisition Proposal ceases to constitute a Superior Offer and (z) in the event of any material amendment to any Superior Offer (including any revision in price or percentage of the combined company that Homology's stockholders would receive as a result of such potential Superior Offer), Homology shall be required to provide Q32 with notice of such material amendment and the Notice Period shall be extended, if applicable, to ensure that at least two (2) Business Days remain in the Notice Period following such notification during which the parties shall comply again with the requirements of this Section 5.9(c) and the Homology Board shall not make a Homology Board Adverse Recommendation Change prior to the end of such Notice Period as so extended (it being understood that there may be multiple extensions).

(d) Homology's obligation to call, give notice of and hold the Homology Stockholder Meeting in accordance with Section 5.9(a) shall not be limited or otherwise affected by the commencement, disclosure, announcement or submission of any Superior Offer or Acquisition Proposal, or by any withdrawal or modification of the Homology Board Recommendation.

(e) Nothing contained in this Agreement shall prohibit Homology or the Homology Board from complying with Rules 14d-9 and 14e-2(a) promulgated under the Exchange Act; provided, however, that any disclosure made by Homology or the Homology Board pursuant to Rules 14d-9 and 14e-2(a) shall be limited to a statement that Homology is unable to take a position with respect to the bidder's tender offer unless the Homology Board determines in good faith, after consultation with its outside legal counsel, that such statement would result in a breach of its fiduciary duties under applicable Law.

5.10 Efforts; Regulatory Approvals.

(a) The Parties shall use commercially reasonable efforts to consummate the Contemplated Transactions. Without limiting the generality of the foregoing, each Party: (i) shall make all filings and other submissions (if any) and give all notices (if any) required to be made and given by such Party in connection with the

Contemplated Transactions, (ii) shall use commercially reasonable efforts to obtain each Consent (if any) reasonably required to be obtained (pursuant to any applicable Law or Contract, or otherwise) by such Party in connection with the Contemplated Transactions or for such Contract to remain in full force and effect, (iii) shall use commercially reasonable efforts to lift any injunction prohibiting, or any other legal bar to, the Contemplated Transactions and (iv) shall use commercially reasonable efforts to satisfy the conditions precedent to the consummation of this Agreement.

(b) Notwithstanding the generality of the foregoing, each Party shall use commercially reasonable efforts to file or otherwise submit, as soon as practicable after the date of this Agreement, all applications, notices, reports and other documents reasonably required to be filed by such Party with or otherwise submitted by such Party to any Governmental Authority with respect to the Contemplated Transactions, and to submit promptly any additional information requested by any such Governmental Authority.

5.11 Disclosures. Without limiting any Party's obligations under the Confidentiality Agreement, no Party shall, and no Party shall permit any of its Subsidiaries or any of its Representative to, issue any press release or make any disclosure (to any customers or employees of such Party, to the public or otherwise) regarding the Contemplated Transactions unless: (a) the other Party shall have approved such press release or disclosure in writing, such approval not to be unreasonably conditioned, withheld or delayed; or (b) such Party shall have determined in good faith, upon the advice of outside legal counsel, that such disclosure is required by applicable Law and, to the extent practicable, before such press release or disclosure is issued or made, such Party advises the other Party of, and consults with the other Party regarding, the text of such press release or disclosure; provided, however, that each of Q32 and Homology may make any statement in response to questions by the press, analysts, investors or those attending industry conferences or financial analyst conference calls, so long as any such statements are consistent with previous press releases, public disclosures or public statements made by Q32 and Homology in compliance with this Section 5.11. Notwithstanding the foregoing, a Party need not consult with any other Parties in connection with such portion of any press release, public statement or filing to be issued or made pursuant to Section 5.9(d) or with an Acquisition Proposal, or Homology Board Adverse Recommendation Change with respect to Homology only pursuant to Section 5.9(e).

5.12 Homology Options. Prior to the Closing, the Homology Board shall have adopted appropriate resolutions and taken all other actions necessary and appropriate to provide (a) each outstanding Homology Option that is not a Homology ITM Option will be cancelled for no consideration and (b) that the vesting and exercisability of each unexpired, unexercised and unvested Homology ITM Option shall be accelerated in full, in each case, effective as of immediately prior to the Effective Time, contingent on the occurrence of the Closing.

5.13 Homology Restricted Stock Unit Awards. Prior to the Closing, the Homology Board shall have adopted appropriate resolutions and taken all other actions necessary and appropriate to provide that (a) the vesting of each outstanding and unvested Homology Restricted Stock Unit Award shall be accelerated in full effective as of immediately prior to the Effective Time, contingent on the occurrence of the Closing and (b) for each outstanding and unsettled Homology Restricted Stock Unit Award, the holder thereof shall receive, immediately prior to the Effective Time, a number of shares of Homology Common Stock equal to the number of vested and unsettled shares of Homology Common Stock underlying such Homology Restricted Stock Unit Award. Notwithstanding anything herein to the contrary, the Tax withholding obligations for each holder receiving shares of Homology Common Stock in accordance with the preceding sentence shall be satisfied by Homology withholding from issuance that number of shares of Homology Common Stock calculated by multiplying the maximum statutory withholding rate for such holder in connection with such issuance by the number of shares of Homology Common Stock to be issued in accordance with the preceding sentence, and rounding up to the nearest whole share and remitting such withholding in cash to the appropriate taxing authorities (the amount of such cash, the "RSU Withholding Amount").

5.14 Homology ESPP. As soon as reasonably practicable following the date of this Agreement, the Homology Board shall adopt appropriate resolutions to provide that (a) no offering periods or purchase periods

shall be commenced following or in addition to the offering period underway as of the date hereof under the Homology ESPP (the "**Current Offering Period**"), (b) no payroll deductions or other contributions shall be made or effected after the Current Offering Period with respect to the Homology ESPP, and (c) each Homology ESPP participant's accumulated contributions under the Homology ESPP shall be returned to the participant in accordance with the terms of the Homology ESPP.

5.15 Indemnification of Officers and Directors.

(a) From the Effective Time through the sixth anniversary of the date on which the Effective Time occurs (or such period in which a D&O Indemnified Party (defined below) is asserting a claim for indemnification or other protections pursuant to this Section 5.15 to the extent arising prior to the end of such six-year period), each of Homology and the Surviving Corporation shall indemnify and hold harmless each person who is now, or has been at any time prior to the date hereof, or who becomes prior to the Effective Time, a director or officer of Homology or Q32, respectively (the "**D&O Indemnified Parties**"), against all claims, losses, liabilities, settlements, damages, judgments, fines and penalties and reasonable fees, costs and expenses, including attorneys' fees and disbursements (collectively, "**Costs**"), incurred in connection with any claim, action, suit, proceeding or investigation, whether civil, criminal, administrative or investigative, formal or informal, arising out of or pertaining to the fact that the D&O Indemnified Party is or was a director or officer of Homology or of Q32, whether asserted or claimed prior to, at or after the Effective Time (including in connection with this Agreement or the Contemplated Transactions), in each case, to the fullest extent permitted under Delaware Law (including as it may be amended after the date of this Agreement to increase the extent to which a corporation may provide indemnification). Each D&O Indemnified Party will be entitled to advancement of fees, costs and expenses incurred in the defense of any such claim, action, suit, proceeding or investigation from each of Homology and the Surviving Corporation, jointly and severally, upon receipt by Homology or the Surviving Corporation from the D&O Indemnified Party of a request therefor; provided that any such person to whom fees, costs or expenses are advanced provides an undertaking to Homology, to the extent then required by Delaware Law, to repay such advances if it is ultimately determined that such person is not entitled to indemnification. Homology and the Surviving Corporation shall each cooperate with the D&O Indemnified Party in the defense of any actual or threatened claim, action, suit, proceeding or investigation.

(b) The provisions of Homology's Organizational Documents with respect to indemnification, advancement of expenses and exculpation of present and former directors and officers of Homology that are presently set forth in Homology's Organizational Documents shall not be amended, modified or repealed for a period of six years from the Effective Time in a manner that would adversely affect the rights thereunder of individuals who, at or prior to the Effective Time, were officers or directors of Homology, unless such modification is required by applicable Law. The Surviving Corporation's Organizational Documents shall contain, and Homology shall cause the certificate of incorporation of the Surviving Corporation to so contain, provisions no less favorable with respect to indemnification, advancement of fees, costs and expenses and exculpation of future, present and former directors and officers as those presently set forth in Homology's and Q32's Organizational Documents, respectively.

(c) From and after the Effective Time, (i) the Surviving Corporation shall fulfill and honor in all respects the obligations of Q32 to its D&O Indemnified Parties as of immediately prior to the Effective Time pursuant to any indemnification, exculpation and advancement provisions under Q32's Organizational Documents and pursuant to any indemnification agreements between Q32 and such D&O Indemnified Parties, with respect to any claim, action, suit, proceeding or investigation, whether civil, criminal, administrative or investigative, formal or informal, arising out of matters occurring at or prior to the Effective Time, whether asserted or claimed prior to, at or after the Effective Time (including in connection with this Agreement or the Contemplated Transactions), and (ii) Homology shall fulfill and honor in all respects the obligations of Homology to its D&O Indemnified Parties as of immediately prior to the Closing pursuant to any indemnification provisions under Homology's Organizational Documents and pursuant to any indemnification agreements between Homology and such D&O Indemnified Parties, with respect to claims arising out of matters occurring at or prior to the Effective Time.

(d) From and after the Effective Time, Homology and the Surviving Corporation shall maintain directors' and officers' liability insurance policies, with an effective date as of the Closing Date, on commercially available terms and conditions and with coverage limits customary for U.S. public companies similarly situated to Homology. In addition, Homology shall purchase, prior to the Effective Time, a six-year prepaid non-cancellable extension of directors' and officers' liability coverage of Homology's existing directors' and officers' insurance policies for a claims reporting or discovery period of at least six years from and after the Effective Time with respect to any claim related to any period of time at or prior to the Effective Time "**Homology D&O Tail Coverage**" with the same or substantially the same terms, conditions, retentions and limits of liability as the coverage provided under Homology's existing policies as of the date of this Agreement with respect to any actual or alleged error, misstatement, misleading statement, act, omission, neglect, breach of duty or any matter claimed against a director or officer of Homology by reason of him or her serving in such capacity that existed or occurred at or prior to the Effective Time (including in connection with this Agreement or the Contemplated Transactions or in connection with Homology's initial public offering of shares of Homology Common Stock).

(e) From and after the Effective Time, each of Homology and the Surviving Corporation, jointly and severally, shall pay all expenses, including reasonable fees, costs and expenses, including attorneys' fees and disbursements in advance, that are incurred by the persons referred to in this Section 5.15 in connection with their enforcement of the rights provided to such persons in this Section 5.15.

(f) The provisions of this Section 5.15 are intended to be in addition to the rights otherwise available to the current and former officers and directors of Homology and Q32 by Law, charter, statute, bylaw or agreement, and shall operate for the benefit of, and shall be enforceable by, each of the D&O Indemnified Parties, their heirs and their Representatives.

(g) In the event Homology or the Surviving Corporation or any of their respective successors or assigns (i) consolidates with or merges into any other Person and shall not be the continuing or surviving corporation or entity of such consolidation or merger or (ii) transfers all or substantially all of its properties and assets to any Person, then, and in each such case, proper provision shall be made so that the successors and assigns of Homology or the Surviving Corporation, as the case may be, shall succeed to the obligations set forth in this Section 5.15. Homology shall cause the Surviving Corporation to perform all of the obligations of the Surviving Corporation under this Section 5.15.

5.16 Tax Matters.

(a) All transfer, documentary, sales, use, stamp, registration, excise, recording, registration value added and other such similar Taxes and fees (including any penalties and interest) that become payable by Q32 or Homology in connection with or by reason of the execution of this Agreement and the transactions contemplated hereby (collectively, "**Transfer Taxes**") shall be borne and paid by Homology. The Person required by applicable law shall timely file any Tax Return or other document with respect to such Transfer Taxes.

(b) At the Closing, Q32 shall deliver to Homology a certificate pursuant to Treasury Regulations Sections 1.1445-2(c) and 1.897-2(h), together with a form of notice to the IRS in accordance with the requirements of Treasury Regulations Section 1.897-2(h), in each case, in form and substance reasonably acceptable to Homology; provided, however, that Homology's only remedy for Q32's failure to provide such form or certificate will be to withhold from the payments to be made pursuant to this Agreement any required withholding Tax under Section 1445 of the Code, and Q32's failure to provide any such form or certificate will not be deemed to be a failure of the conditions set forth in Article VI to have been met.

(c) The parties intend that, for United States federal income tax purposes, the Merger will qualify for the Intended Tax Treatment. The Merger shall be reported by the parties for all Tax purposes in accordance with the foregoing, unless otherwise required by a Governmental Authority as a result of a "determination" within the meaning of Section 1313(a) of the Code. The parties shall cooperate with each other and their respective counsel

to document and support the Tax treatment of the Merger as qualifying for the Intended Tax Treatment, including by taking the actions described on Section 5.16(c) of the Q32 Disclosure Schedule.

5.17 Listing. At or prior to the Effective Time, Homology shall use commercially reasonable efforts to (a) maintain a listing on Nasdaq until the Effective Time and, to the extent required by the rules and regulations of Nasdaq, obtain approval of the listing of the combined company on Nasdaq; (b) to the extent required by the rules and regulations of Nasdaq, prepare and submit to Nasdaq a notification form for the listing of the shares of Homology Common Stock to be issued in connection with the Contemplated Transactions and to cause such shares to be approved for listing; (c) prepare and timely submit to Nasdaq a notification form of the Nasdaq Reverse Split and to submit a copy of the amendment to Homology's certificate of incorporation to effect the Nasdaq Reverse Split and other amendments contemplated by Section 2.4 certified by the Secretary of State of the State of Delaware, to Nasdaq on or before the Closing Date; and (d) to the extent required by Nasdaq Marketplace Rule 5110, assist Q32 in preparing and filing an initial listing application for the Homology Common Stock on Nasdaq (the "**Nasdaq Listing Application**"). The Party not filing the Nasdaq Listing Application will cooperate with the other Party as reasonably requested by such filing Party with respect to the Nasdaq Listing Application and promptly furnish to such filing Party all information concerning itself and its stockholders that may be required or reasonably requested in connection with any action contemplated by this Section 5.17.

5.18 Legends. Homology shall be entitled to place appropriate legends on the book entries and/or certificates evidencing any shares of Homology Common Stock to be received in the Merger by equityholders of Q32 who may be considered "affiliates" of Homology for purposes of Rules 144 and 145 under the Securities Act reflecting the restrictions set forth in Rules 144 and 145 and to issue appropriate stop transfer instructions to the transfer agent for Homology Common Stock.

5.19 Officers and Directors.

(a) Directors and Officers of Homology.

(i) Homology shall cause, effective as of the Effective Time, the Homology Board to consist of nine (9) individuals, which shall consist of (A) seven (7) members selected by the Q32 Board (each, a "**Q32 Designee**") and (B) two (2) members selected by the Homology Board as set forth on Section 5.19(a)(i) of the Homology Disclosure Schedule (each, a "**Homology Designee**"). Q32 shall deliver a notice to Homology identifying each of the Q32 Designees at least three (3) Business Days prior to the Closing Date. If any Q32 Designee or Homology Designee is unable or unwilling to serve as director of Homology, the Party appointing such Person shall designate a successor.

(ii) Homology shall cause the directors and officers of Homology listed on Section 5.19(a)(ii) of the Homology Disclosure Schedule to sign written resignations in forms reasonably satisfactory to Q32, dated on or before the Closing Date and effective as of the Effective Time.

(iii) Immediately following the Effective Time, Homology shall take all necessary action to appoint the officers of Q32 to become the equivalent officers of Homology until the earlier of their resignation or removal or until their respective successors are duly elected or appointed and qualified, as the case may be.

(b) Directors and Officers of the Surviving Corporation.

(i) The Parties shall take all actions necessary (A) so that from and after the Effective Time, the Surviving Corporation's board of directors shall be constituted with those members as set forth on Section 5.19(b) of the Homology Disclosure Schedule and (B) to secure the resignations of the existing members of the committees of the Surviving Corporation, if any.

(ii) The Parties shall take all actions necessary so that the officers of Q32 immediately prior to the Effective Time shall, from and after the Effective Time, be the officers of the Surviving Corporation, until the earlier of their resignation or removal or until their respective successors are duly elected or appointed and qualified, as the case may be.

(iii) On the Closing Date, the Surviving Corporation shall enter into customary indemnification agreements reasonably satisfactory to Q32 with each individual to be appointed to, or serving on, the board of directors of the Surviving Corporation upon the Closing, which indemnification agreements shall continue to be effective following the Closing.

5.20 Termination of Certain Agreements and Rights. Q32 shall cause any stockholder agreements, voting agreements, registration rights agreements, co-sale agreements and any other similar Contracts between Q32 and any holders of Q32 Capital Stock, including any such Contract granting any Person investor rights, rights of first refusal, registration rights or director registration rights to be terminated immediately prior to the Effective Time, without any liability being imposed on the part of Homology or the Surviving Corporation.

5.21 Section 16 Matters. Prior to the Effective Time, Homology shall take all such steps as may be required to cause any acquisitions of Homology Common Stock and any options to purchase Homology Common Stock in connection with the Contemplated Transactions, by each individual who is reasonably expected to become subject to the reporting requirements of Section 16(a) of the Exchange Act with respect to Homology, to be exempt under Rule 16b-3 promulgated under the Exchange Act.

5.22 Allocation Certificate. Q32 will prepare and deliver to Homology at least two (2) Business Days prior to the Closing Date a certificate signed by an executive officer of Q32 in a form reasonably acceptable to Homology setting forth (as of immediately prior to the Effective Time) (a) each holder of Q32 Capital Stock, (b) such holder's name and address, (c) the number and type of Q32 Capital Stock held as of the Closing Date for each such holder and (d) the number of shares of Homology Common Stock to be issued to such holder pursuant to this Agreement in respect of the Q32 Capital Stock held by such holder as of immediately prior to the Effective Time, and (e) each investor in the Concurrent Financing, the total investment to be made by such investor in the Concurrent Financing, the percentage of the Concurrent Financing Proceeds represented by such stockholder's investment in the Concurrent Financing, and the number of shares of Homology Common Stock to be issued to such holder pursuant to this Agreement (the "**Allocation Certificate**"). For the avoidance of doubt, the Allocation Certificate shall be prepared in good faith, in accordance with the Organizational Documents of Q32 and contracts applicable to Q32 Capital Stock, Q32 Options and Q32 Warrants], and shall show each holder's percentage ownership interest in Q32 on a fully diluted basis.

5.23 Nasdaq Reverse Split. Homology shall submit to Homology's stockholders at the Homology Stockholder Meeting the Reverse Stock Split Proposal, and the Parties shall take such other actions as shall be reasonably necessary to effectuate the Nasdaq Reverse Split.

5.24 Obligations of Merger Sub. Homology will take all action necessary to cause Merger Sub to perform its obligations under this Agreement and to consummate the Merger on the terms and conditions set forth in this Agreement.

5.25 Takeover Statutes. If any takeover statute is or may become applicable to the Contemplated Transactions, each of Q32, the Q32 Board, Homology and the Homology Board, as applicable, shall grant such approvals and take such actions as are necessary, to the extent permitted by Law, so that the Contemplated Transactions may be consummated as promptly as practicable on the terms contemplated by this Agreement and otherwise act to eliminate or minimize the effects of such statute or regulation on the Contemplated Transactions.

5.26 Stockholder Litigation. Each Party shall keep the other Party reasonably informed regarding any stockholder litigation against Homology or any of its directors relating to this Agreement or the Contemplated Transactions ("**Transaction Litigation**"). Prior to the Closing, Homology shall have the right to control the defense and settlement of any Transaction Litigation, but shall reasonably consult with Q32 and consider any advice from Q32 and its Representatives with respect to Transaction Litigation. Homology shall promptly advise Q32 of the initiation of, and shall keep Q32 reasonably apprised of any material developments in connection with, any such Transaction Litigation.

5.27 Concurrent Financing.

(a) Subject to the terms and conditions of this Agreement, Q32 shall use commercially reasonable efforts to obtain the Concurrent Financing on the terms and conditions described in the Subscription Agreement and satisfy the conditions to the Concurrent Financing as described in the Subscription Agreement and shall not permit any termination, amendment or modification to be made to, or any waiver of any provision under, or any replacement of, the Subscription Agreement if such termination, amendment, modification, waiver or replacement (i) reduces the aggregate amount of the Concurrent Financing or (ii) imposes new or additional conditions or otherwise expands, amends or modifies any of the conditions to the receipt of the Concurrent Financing, or otherwise expands, amends or modifies any other provision of the Subscription Agreement, in a manner that would reasonably be expected to (x) delay or prevent the funding of the Concurrent Financing (or satisfaction of the conditions to the Concurrent Financing) at or substantially simultaneously with the Closing or (y) adversely impact the ability of Q32 to enforce its rights against other parties to the Subscription Agreement. Q32 shall promptly deliver to Homology copies of any such termination, amendment, modification, waiver or replacement.

(b) Q32 shall use commercially reasonable efforts (i) to maintain in effect the Subscription Agreement, (ii) to enforce its rights under the Subscription Agreement and (iii) to comply with its obligations under the Subscription Agreement.

(c) Q32 shall give Homology prompt notice (i) of any breach or default by any party to the Subscription Agreement or definitive agreements related to the Concurrent Financing of which Q32 becomes aware, (ii) of the receipt of any written notice or other written communication from any Purchaser with respect to any (x) actual breach, default, termination or repudiation by any party to the Subscription Agreement or definitive agreements related to the Concurrent Financing of any provisions of the Subscription Agreement or definitive agreements related to the Concurrent Financing or (y) material dispute or disagreement relating to the Concurrent Financing with respect to the obligation to fund the Concurrent Financing at or substantially simultaneously with the Closing, and (iii) if at any time for any reason Q32 believes in good faith that it will not be able to obtain all or any portion of the Concurrent Financing on the terms and conditions, in the manner or from the sources contemplated by the Subscription Agreement or definitive agreements related to the Concurrent Financing. Q32 shall promptly provide information reasonably requested by Homology relating to the circumstances referred to in clauses (i), (ii) or (iii) of the immediately preceding sentence.

5.28 Homology Equity Plans.

(a) Prior to the effectiveness of the Form S-4, Homology will use commercially reasonable efforts to cause the Homology Board to adopt the 2024 Equity Incentive Plan, subject to the Closing and the approval of the stockholders of Homology prior to the Effective Time and effective as of the Effective Time, and at Q32's expense, will include provisions in the Proxy Statement for the stockholders of Homology to approve the 2024 Equity Incentive Plan. Subject to the approval of the 2024 Equity Incentive Plan by the stockholders of Homology prior to the Effective Time, Homology shall file with the SEC, promptly after the Effective Time and at Q32's expense, a registration statement on Form S-8 (or any successor form), if available for use by Homology, relating to the shares of Homology Common Stock issuable with respect to the 2024 Equity Incentive Plan.

(b) Prior to the effectiveness of the Form S-4, Homology will use commercially reasonable efforts to cause the Homology Board to adopt the 2024 ESPP, subject to the Closing and the approval of the stockholders of Homology prior to the Effective Time and effective as of the Effective Time, and at Q32's expense, will include provisions in the Proxy Statement for the stockholders of Homology to approve the 2024 ESPP. Subject to the approval of the 2024 ESPP by the stockholders of Homology prior to the Effective Time, Homology shall file with the SEC, promptly after the Effective Time and at Q32's expense, a registration statement on Form S-8 (or any successor form), if available for use by Homology, relating to the shares of Homology Common Stock issuable with respect to the 2024 ESPP.

(c) For the avoidance of doubt, approval of the 2024 Plans by the stockholders of Homology shall not be a condition to Closing.

5.29 Homology 401(k) Plan. Unless otherwise requested by Q32 in writing at least ten (10) Business Days prior to the Closing Date, the Homology Board or an authorized committee thereof shall take (or cause to be taken) all actions to adopt such resolutions as may be necessary or appropriate to terminate, effective no later than the day prior to the Closing Date but subject to the Closing, any Homology Employee Plan that contains a cash or deferred arrangement intended to qualify under Section 401(k) of the Code (a "**Homology 401(k) Plan**"). If Homology is required to terminate any Homology 401(k) Plan, then Homology shall provide to Q32 prior to the Closing Date written evidence of the adoption by the Homology Board or an authorized committee thereof of resolutions authorizing the termination of such Homology 401(k) Plan (the form and substance of which shall be subject to the reasonable prior review and approval of Q32, not to be unreasonably withheld, conditioned or delayed).

ARTICLE VI
CONDITIONS TO CONSUMMATION OF THE MERGER

6.1 Conditions Precedent to Obligations of Each Party. The obligations of each Party to effect the Merger and otherwise consummate the Contemplated Transactions are subject to the satisfaction or, to the extent permitted by applicable law, the written waiver by each of the Parties, at or prior to the Closing, of each of the following conditions:

(a) No temporary restraining order, preliminary or permanent injunction or other Order preventing the consummation of the Contemplated Transactions shall have been issued by any court of competent jurisdiction or other Governmental Authority of competent jurisdiction and remain in effect and there shall not be any Law which has the effect of making the consummation of the Contemplated Transactions illegal.

(b) Homology shall have obtained the Required Homology Stockholder Vote, and Q32 shall have obtained the Required Q32 Stockholder Vote.

(c) The approval of the listing of the additional shares of Homology Common Stock on Nasdaq shall have been obtained and the shares of Homology Common Stock to be issued in the Merger pursuant to this Agreement shall have been approved for listing (subject to official notice of issuance) on Nasdaq.

(d) The Subscription Agreement shall be in full force and effect and cash proceeds of not less than the Concurrent Investment Amount shall have been received by Homology, or will be received by Homology substantially simultaneously with the Closing, in connection with the consummation of the transactions contemplated by the Subscription Agreement.

(e) The Homology Lock-Up Agreements and Q32 Lock-Up Agreements will continue to be in full force and effect as of immediately following the Effective Time.

(f) The Registration Statement shall have become effective in accordance with the provisions of the Securities Act, and shall not be subject to any stop order or proceeding seeking a stop order with respect to such Registration Statement that has not been withdrawn.

(g) Q32 shall have effected the Q32 Preferred Stock Conversion.

6.2 Conditions Precedent to Obligations of Q32. The obligations of Q32 to effect the Merger and otherwise consummate the Contemplated Transactions are subject to the satisfaction or, to the extent permitted by applicable law, the written waiver by Q32, at or prior to the Closing, of each of the following conditions:

(a) Each of the Homology Fundamental Representations shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of such date (except to the extent such representations and warranties are specifically made as of a particular date, in which case such representations and warranties shall be true and correct as of such date). The Homology Capitalization Representations shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the same force and effect as if made on and as of such date, except, in each case, (x) for such inaccuracies which are de minimis, individually or in the aggregate or (y) for those representations and warranties which address matters only as of a particular date (which representations and warranties shall have been true and correct, subject to the qualifications as set forth in the preceding clause (x), as of such particular date). The representations and warranties of Homology and Merger Sub contained in this Agreement (other than the Homology Fundamental Representations and the Homology Capitalization Representations) shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the same force and effect as if made on the Closing Date except (i) in each case, or in the aggregate, where the failure to be true and correct would not reasonably be expected to have a Homology Material Adverse Effect (without giving effect to any references therein to any Homology Material Adverse Effect or other materiality qualifications), (ii) where the failure to be true and correct as of the Closing Date is the result of (a) a Legacy Asset Disposition or (b) abandonment of or failure to file, prosecute or maintain any Abandoned Homology Legacy IP Rights (provided that this clause (ii) shall not cover any liability related to Legacy IP Rights (e.g., liability for infringement) that remains with the Company following Closing or (iii) for those representations and warranties which address matters only as of a particular date (which representations shall have been true and correct, subject to the qualifications as set forth in the preceding clause (i) and (ii), as of such particular date) (it being understood that, for purposes of determining the accuracy of such representations and warranties, any update of or modification to the Homology Disclosure Schedule made or purported to have been made after the date of this Agreement shall be disregarded).

(b) Homology and Merger Sub shall have performed or complied in all material respects with all covenants and agreements required to be performed or complied with by them under this Agreement at or prior to the Closing Date.

(c) A Homology Material Adverse Effect shall not have occurred since the date of this Agreement and be continuing.

(d) Homology shall have delivered to Q32 a certificate (the "**Homology Closing Certificate**"), dated the Closing Date and signed by an executive officer of Homology, certifying to the effect that the conditions set forth in Sections 6.2(a) and 6.2(b) have been satisfied.

6.3 Conditions Precedent to Obligations of Homology. The obligations of Homology and Merger Sub to effect the Merger and otherwise consummate the Contemplated Transactions are subject to the satisfaction or, to the extent permitted by applicable law, the written waiver by Homology, at or prior to the Closing, of each of the following conditions:

(a) Each of the Q32 Fundamental Representations shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct in all material respects on and as of the Closing Date with the same force and effect as if made on and as of such date (except to the extent such representations and warranties are specifically made as of a particular date, in which case such representations and warranties shall be true and correct as of such date). The Q32 Capitalization Representations shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the

same force and effect as if made on and as of such date, except, in each case, (x) for such inaccuracies which are de minimis, individually or in the aggregate or (y) for those representations and warranties which address matters only as of a particular date (which representations and warranties shall have been true and correct, subject to the qualifications as set forth in the preceding clause (x), as of such particular date). The representations and warranties of Q32 contained in this Agreement (other than the Q32 Fundamental Representations and the Q32 Capitalization Representations) shall have been true and correct in all respects as of the date of this Agreement and shall be true and correct on and as of the Closing Date with the same force and effect as if made on the Closing Date except (i) in each case, or in the aggregate, where the failure to be so true and correct would not reasonably be expected to have a Q32 Material Adverse Effect (without giving effect to any references therein to any Q32 Material Adverse Effect or other materiality qualifications) or (ii) for those representations and warranties which address matters only as of a particular date (which representations shall have been true and correct, subject to the qualifications as set forth in the preceding clause (a), as of such particular date) (it being understood that, for purposes of determining the accuracy of such representations and warranties, any update of or modification to the Q32 Disclosure Schedule made or purported to have been made after the date of this Agreement shall be disregarded).

(b) Q32 shall have performed and complied in all material respects with all covenants and agreements required to be performed or complied with by it under this Agreement at or prior to the Closing Date.

(c) A Q32 Material Adverse Effect shall not have occurred since the date of this Agreement and be continuing.

(d) Q32 shall have delivered to Homology a certificate (the "**Q32 Closing Certificate**"), dated the Closing Date and signed by an executive officer of Q32, certifying to the effect that (i) the conditions set forth in Sections 6.3(a), 6.3(b) and 6.3(c) have been satisfied and (ii) the information set forth in the Allocation Certificate delivered by Q32 in accordance with Section 5.22 is true and accurate in all respects as of the Closing Date.

6.4 Frustration of Closing Conditions. Neither Homology nor Merger Sub may rely on the failure of any conditions set forth in Sections 6.1 or 6.3 to be satisfied if the primary cause of such failure was the failure of Homology or Merger Sub to perform any of its obligations under this Agreement. Q32 may not rely on the failure of any conditions set forth in Sections 6.1 or 6.2 to be satisfied if the primary cause of such failure was the failure of Q32 to perform any of its obligations under this Agreement.

ARTICLE VII
CLOSING DELIVERIES

7.1 Closing Deliveries of Q32. The obligations of Homology and Merger Sub to effect the Merger and otherwise consummate the Contemplated Transactions are subject to Homology receiving the following documents, each of which shall be in full force and effect, or the written waiver by Homology of delivery:

(a) the Q32 Stockholder Written Consents;

(b) the Allocation Certificate; and

(c) the Q32 Closing Certificate.

7.2 Closing Deliveries of Homology. The obligations of Q32 to effect the Merger and otherwise consummate the Contemplated Transactions are subject to Q32 receiving the following documents, each of which shall be in full force and effect, or the written waiver by Q32 of delivery:

(a) the Homology Net Cash Schedule;

(b) the Homology Closing Certificate;

(c) subject to Section 2.5, the executed CVR Agreement; and

(d) written resignations in forms satisfactory to Q32, dated as of the Closing Date and effective as of the Closing executed by the officers and directors of Homology who are not to continue as officers or directors of Homology pursuant to Section 5.19 hereof.

ARTICLE VIII
TERMINATION

8.1 Termination. This Agreement may be terminated, and the Merger and the Contemplated Transactions may be abandoned at any time prior to the Effective Time, whether before or (subject to the terms hereof) after approval of the Homology Stockholder Matters by Homology's stockholders, unless otherwise specified below:

(a) by mutual written consent of Homology and Q32;

(b) by either Homology and Q32 if the Merger shall not have been consummated by May 16, 2024 (subject to possible extension as provided in this Section 8.1(b), the "**Outside Date**"); provided, however, that the right to terminate this Agreement under this Section 8.1(b) shall not be available to Homology or Q32 if such Party's action or failure to act has been a principal cause of the failure of the Merger to occur on or before the Outside Date and such action or failure to act constitutes a breach of this Agreement, provided, further, however, that, in the event that the SEC has not declared effective under the Securities Act the Registration Statement by the date which is twenty-five (25) days prior to the Outside Date, then either Homology or Q32 shall be entitled to extend the Outside Date for an additional ninety (90) days;

(c) by either Homology and Q32 if a court of competent jurisdiction or other Governmental Authority shall have issued a final and nonappealable Order, or shall have taken any other action, having the effect of permanently restraining, enjoining or otherwise prohibiting the Contemplated Transactions;

(d) by Homology if the Required Q32 Stockholder Vote shall not have been obtained and evidence thereof delivered to Homology within fifteen (15) days of the Registration Statement becoming effective in accordance with the provisions of the Securities Act; provided, however, that once the Required Q32 Stockholder Vote has been obtained, Homology may not terminate this Agreement pursuant to this Section 8.1(d);

(e) by either Homology or Q32 if (i) the Homology Stockholder Meeting (including any adjournments and postponements thereof) shall have been held and completed and Homology's stockholders shall have taken a final vote on the Homology Stockholder Matters and (ii) the Homology Stockholder Matters shall not have been approved at the Homology Stockholder Meeting (or at any adjournment or postponement thereof) by the Required Homology Stockholder Vote;

(f) by Q32 (at any time prior to the approval of the Homology Stockholder Matters by the Required Homology Stockholder Vote) if a Homology Triggering Event shall have occurred;

(g) by Homology (at any time prior to the adoption of this Agreement and the approval of the Contemplated Transactions by the Required Q32 Stockholder Vote) if a Q32 Triggering Event shall have occurred;

(h) by Q32, upon a breach of any representation, warranty, covenant or agreement set forth in this Agreement by Homology or Merger Sub or if any representation or warranty of Homology or Merger Sub shall have become inaccurate, in either case, such that the conditions set forth in Section 6.2(a) or Section 6.2(b) would not be satisfied as of the time of such breach or as of the time such representation or warranty shall have become inaccurate; provided that Q32 is not then in material breach of any representation, warranty, covenant or agreement under this Agreement; provided, further, that if such inaccuracy in Homology's or Merger Sub's representations and warranties or breach by Homology or Merger Sub is curable by Homology or Merger Sub, then this Agreement shall not terminate pursuant to this Section 8.1(h) as a result of such particular breach or inaccuracy until the expiration of a 30-day period commencing upon delivery of written notice from Q32 to

Homology or Merger Sub of such breach or inaccuracy and its intention to terminate pursuant to this Section 8.1(h) (it being understood that this Agreement shall not terminate pursuant to this Section 8.1(h) as a result of such particular breach or inaccuracy if such breach by Homology or Merger Sub is cured prior to such termination becoming effective); or

(i) by Homology, upon a breach of any representation, warranty, covenant or agreement set forth in this Agreement by Q32 or if any representation or warranty of Q32 shall have become inaccurate, in either case, such that the conditions set forth in Section 6.3(a) or Section 6.3(b) would not be satisfied as of the time of such breach or as of the time such representation or warranty shall have become inaccurate; provided that Homology is not then in material breach of any representation, warranty, covenant or agreement under this Agreement; provided, further, that if such inaccuracy in Q32's representations and warranties or breach by Q32 is curable by Q32 then this Agreement shall not terminate pursuant to this Section 8.1(i) as a result of such particular breach or inaccuracy until the expiration of a 30-day period commencing upon delivery of written notice from Homology to Q32 of such breach or inaccuracy and its intention to terminate pursuant to this Section 8.1(i) (it being understood that this Agreement shall not terminate pursuant to this Section 8.1(i) as a result of such particular breach or inaccuracy if such breach by Q32 is cured prior to such termination becoming effective).

The Party desiring to terminate this Agreement pursuant to this Section 8.1 (other than pursuant to Section 8.1(a)) shall give a notice of such termination to the other Party specifying the provisions hereof pursuant to which such termination is made and the basis therefor described in reasonable detail.

8.2 Effect of Termination. In the event of the termination of this Agreement as provided in Section 8.1, this Agreement shall be of no further force or effect; provided, however, that (a) this Section 8.2, Section 8.3, and Article IX shall survive the termination of this Agreement and shall remain in full force and effect and (b) the termination of this Agreement and the provisions of Section 8.3 shall not relieve any Party of any liability for fraud or for any willful and material breach of any representation, warranty, covenant, obligation or other provision contained in this Agreement.

8.3 Expenses; Termination Fees.

(a) Except as set forth in this Section 8.3 all fees and expenses incurred in connection with this Agreement and the Contemplated Transactions shall be paid by the Party incurring such expenses, whether or not the Merger is consummated; provided, however, that (i) Homology and Q32 shall pay the costs and expenses incurred in relation to the filings by the Parties under any antitrust Law applicable to this Agreement and the transactions contemplated hereby, and (ii) Homology and Q32 shall share equally all fees and expenses incurred in relation to the printing and filing with the SEC of the Registration Statement (including any financial statements and exhibits) and any amendments or supplements thereto and paid to a financial printer or the SEC.

(b) If (i) this Agreement is terminated by Homology or Q32 pursuant to Section 8.1(b), (ii) at any time after the date of this Agreement and prior to the Homology Stockholder Meeting an Acquisition Proposal with respect to Homology shall have been publicly announced, disclosed or otherwise communicated to the Homology Board (and shall not have been withdrawn) and (iii) within twelve (12) months after the date of such termination, Homology enters into a definitive agreement with respect to a Subsequent Transaction or consummates a Subsequent Transaction, then Homology shall pay to Q32, within four (4) Business Days after termination (or, if applicable, upon such entry into a definitive agreement and/or consummation of a Subsequent Transaction), a nonrefundable fee in an amount equal to $2,400,000.

(c) If this Agreement is terminated by Q32 pursuant to Section 8.1(f), then Homology shall pay to Q32 within four (4) Business Days after termination, a nonrefundable fee in an amount equal to $2,400,000.

(d) If this Agreement is terminated by Homology pursuant to Section 8.1(d) or Section 8.1(g), then Q32 shall pay to Homology, within four (4) Business Days after termination, a nonrefundable fee in an amount equal to $5,850,000.

(e) If either Party fails to pay when due any amount payable by it under this Section 8.3, then (i) such Party shall reimburse the other Party for reasonable costs and expenses (including reasonable fees and disbursements of counsel) incurred in connection with the collection of such overdue amount and the enforcement by the other Party of its rights under this Section 8.3 and (ii) such Party shall pay to the other Party interest on such overdue amount (for the period commencing as of the date such overdue amount was originally required to be paid and ending on the date such overdue amount is actually paid to the other Party in full) at a rate per annum equal to the "prime rate" (as announced by Bank of America or any successor thereto) in effect on the date such overdue amount was originally required to be paid plus three percent.

(f) The Parties agree that, subject to Section 8.2, the payment of the fees and expenses set forth in this Section 8.3 shall be the sole and exclusive remedy of each Party following a termination of this Agreement under the circumstances described in this Section 8.3 that result in the payment of such fees, it being understood that in no event shall either Homology or Q32 be required to pay the individual fees or damages payable pursuant to this Section 8.3 on more than one occasion. Subject to Section 8.2, following the termination of this Agreement under the circumstances described in this Section 8.3 and the payment of the fees set forth in this Section 8.3 by a Party, (i) such Party shall have no further liability to the other Party in connection with or arising out of this Agreement or the termination thereof, any breach of this Agreement by the other Party giving rise to such termination, or the failure of the Contemplated Transactions to be consummated, (ii) no other Party or their respective Affiliates shall be entitled to bring or maintain any other claim, action or proceeding against such Party or seek to obtain any recovery, judgment or damages of any kind against such Party (or any partner, member, stockholder, director, officer, employee, Subsidiary, affiliate, agent or other representative of such Party) in connection with or arising out of this Agreement or the termination thereof, any breach by such Party giving rise to such termination or the failure of the Contemplated Transactions to be consummated and (iii) all other Parties and their respective Affiliates shall be precluded from any other remedy against such Party and its Affiliates, at law or in equity or otherwise, in connection with or arising out of this Agreement or the termination thereof, any breach by such Party giving rise to such termination or the failure of the Contemplated Transactions to be consummated. Each of the Parties acknowledges that (x) the agreements contained in this Section 8.3 are an integral part of the Contemplated Transactions, (y) without these agreements, the Parties would not enter into this Agreement and (z) any amount payable pursuant to this Section 8.3 is not a penalty, but rather is liquidated damages in a reasonable amount that will compensate the Parties in the circumstances in which such amount is payable.

ARTICLE IX
GENERAL PROVISIONS

9.1 Non-Survival of Representations and Warranties. The representations and warranties of Q32, Homology and Merger Sub contained in this Agreement or any certificate or instrument delivered pursuant to this Agreement shall terminate at the Effective Time, and only the covenants that by their terms survive the Effective Time and this Article IX shall survive the Effective Time.

9.2 Amendment. This Agreement may be amended with the approval of the respective boards of directors of Q32, Merger Sub and Homology at any time (whether before or after obtaining the Required Q32 Stockholder Vote and the Required Homology Stockholder Vote); provided, however, that after any such approval of this Agreement by a Party's stockholders or members, no amendment shall be made which by Law requires further approval of such stockholders or members without the further approval of such stockholders or members. This Agreement may not be amended except by an instrument in writing signed on behalf of each of Q32, Merger Sub and Homology.

9.3 Waiver.

(a) Any provision hereof may be waived by the waiving Party solely on such Party's own behalf, without the consent of any other Party. No failure on the part of any Party to exercise any power, right, privilege or

remedy under this Agreement, and no delay on the part of any Party in exercising any power, right, privilege or remedy under this Agreement, shall operate as a waiver of such power, right, privilege or remedy; and no single or partial exercise of any such power, right, privilege or remedy shall preclude any other or further exercise thereof or of any other power, right, privilege or remedy.

(b) No Party shall be deemed to have waived any claim arising out of this Agreement, or any power, right, privilege or remedy under this Agreement, unless the waiver of such claim, power, right, privilege or remedy is expressly set forth in a written instrument duly executed and delivered on behalf of such Party and any such waiver shall not be applicable or have any effect except in the specific instance in which it is given.

9.4 Entire Agreement; Counterparts; Exchanges by Electronic Transmission or Facsimile. This Agreement and the other schedules, exhibits, certificates, instruments and agreements referred to in this Agreement constitute the entire agreement and supersede all prior agreements and understandings, both written and oral, among or between any of the Parties with respect to the subject matter hereof and thereof; provided, however, that the Confidentiality Agreement shall not be superseded and shall remain in full force and effect in accordance with its terms. This Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Agreement (in counterparts or otherwise) by all Parties by facsimile or electronic transmission in PDF format shall be sufficient to bind the Parties to the terms and conditions of this Agreement.

9.5 Applicable Law; Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the laws of the State of Delaware, regardless of the laws that might otherwise govern under applicable principles of conflicts of laws. In any action or proceeding between any of the Parties arising out of or relating to this Agreement or any of the Contemplated Transactions, each of the Parties: irrevocably and unconditionally (a) consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the State of Delaware or, to the extent such court does not have subject matter jurisdiction, the Superior Court of the State of Delaware or the United States District Court for the District of Delaware, (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this Section 9.5, (c) waives any objection to laying venue in any such action or proceeding in such courts, (d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any Party, (e) agrees that service of process upon such Party in any such action or proceeding shall be effective if notice is given in accordance with Section 9.7 of this Agreement and (f) irrevocably and unconditionally waives the right to trial by jury.

9.6 Assignability. This Agreement shall be binding upon, and shall be enforceable by and inure solely to the benefit of, the Parties and their respective successors and permitted assigns; provided, however, that neither this Agreement nor any of a Party's rights or obligations hereunder may be assigned or delegated by such Party without the prior written consent of the other Party, and any attempted assignment or delegation of this Agreement or any of such rights or obligations by such Party without the other Party's prior written consent shall be void and of no effect.

9.7 Notices. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly delivered and received hereunder (a) one (1) Business Day after being sent for next Business Day delivery, fees prepaid, via a reputable international overnight courier service, (b) upon delivery in the case of delivery by hand or (c) on the date delivered in the place of delivery if sent by email or facsimile (with a written or electronic confirmation of delivery) prior to 6:00 p.m. New York City time, otherwise on the next succeeding Business Day, in each case to the intended recipient as set forth below:

if to Homology or Merger Sub:

Homology Medicines, Inc.
One Patriots Park
Bedford, MA 01730
Attention: Paul Alloway
Email: [***]

with a copy to (which shall not constitute notice):

Latham & Watkins LLP
200 Clarendon Street
Boston, MA 02116
Attention: Peter Handrinos; Leah Sauter
Email: [***]
if to Q32:

Q32 Bio Inc.
830 Winter St.
Waltham, MA 02451
Attention: Jodie Morrison
Email: [***]

with a copy to (which shall not constitute notice):

Goodwin Procter LLP
100 Northern Avenue
Boston, MA 02210
Attention: John T. Haggerty; Jacqueline Mercier; Tevia K. Pollard
Email: [***]

9.8 Cooperation. Each Party agrees to cooperate fully with the other Party and to execute and deliver such further documents, certificates, agreements and instruments and to take such other actions as may be reasonably requested by the other Party to evidence or reflect the Contemplated Transactions and to carry out the intent and purposes of this Agreement.

9.9 Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Agreement is invalid or unenforceable, the Parties agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the Parties agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

9.10 Other Remedies; Specific Performance. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a Party will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by law or equity upon such Party, and the exercise by a Party of any one remedy will not preclude the exercise of any other remedy. The Parties agree that irreparable damage for which monetary damages, even if available, would not be an adequate remedy, would occur in the event that any of the provisions of this Agreement were not performed in accordance with their specific terms (including failing to take such actions as are required of it hereunder to consummate this Agreement) or were otherwise breached. It is accordingly agreed that the Parties shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which they are entitled at law or in equity, and each of the Parties waives any bond, surety or other security that might be required of any other Party with respect thereto. Each of the Parties further agrees that it will not oppose the granting of an injunction, specific performance or other equitable relief on the basis that any other Party has an adequate remedy at law or that any award of specific performance is not an appropriate remedy for any reason at law or in equity.

9.11 No Third-Party Beneficiaries.

Nothing in this Agreement, express or implied, is intended to or shall confer upon any Person (other than the Parties and the D&O Indemnified Parties to the extent of their respective rights pursuant to Section 5.15) any right, benefit or remedy of any nature whatsoever under or by reason of this Agreement.

[*Remainder of page intentionally left blank*]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the date first above written.

HOMOLOGY MEDICINES, INC.

By: /s/ Albert Seymour
Name: Albert Seymour
Title: President and Chief Executive Officer

KENOBI MERGER SUB, INC.

By: /s/ Paul Alloway
Name: Paul Alloway
Title: President

Q32 BIO INC.

By: /s/ Jodie Morrison
Name: Jodie Morrison
Title: Chief Executive Officer

[Signature Page to Merger Agreement]

Exhibit A

Form of Homology Stockholder Support Agreement

[Intentionally Omitted]

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Exhibit B

Form of Q32 Stockholder Support Agreement

[Intentionally Omitted]

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Exhibit C

Form of Homology Lock-Up Agreement

[Intentionally Omitted]

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Exhibit D

Form of Q32 Lock-Up Agreement

[Intentionally Omitted]

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Exhibit E

Form of CVR Agreement

[Intentionally Omitted]

Annex B

Execution Version

HOMOLOGY MEDICINES, INC.

SUPPORT AGREEMENT

THIS SUPPORT AGREEMENT (this "Agreement"), dated as of November 16, 2023 is made by and among Homology Medicines, Inc., a Delaware corporation ("Homology"), Q32 Bio Inc., a Delaware corporation (the "Company"), and the undersigned holders (each a "Stockholder") of shares of capital stock (the "Shares") of Homology.

WHEREAS, Homology, Kenobi Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of Homology ("Merger Sub"), and the Company, have entered into an Agreement and Plan of Merger, dated as of even date herewith (the "Merger Agreement"), providing for the merger of Merger Sub with and into the Company (the "Merger");

WHEREAS, each Stockholder beneficially owns and has sole or shared voting power with respect to the number of Shares, and holds Homology Options to acquire the number of Shares, indicated opposite such Stockholder's name on Schedule 1 attached hereto;

WHEREAS, as an inducement and a condition to the willingness of the Company to enter into the Merger Agreement, each Stockholder has agreed to enter into and perform this Agreement; and

WHEREAS, all capitalized terms used in this Agreement without definition herein shall have the meanings ascribed to them in the Merger Agreement.

NOW, THEREFORE, in consideration of, and as a condition to, the Company's entering into the Merger Agreement, each Stockholder, Homology and the Company agree as follows:

1. Agreement to Vote Shares. Each Stockholder agrees that, prior to the Expiration Date (as defined in Section 2 below), at any meeting of the stockholders of Homology or any adjournment or postponement thereof, or in connection with any written consent of the stockholders (or any class or series of stockholders, as applicable) of Homology, with respect to the Merger, the Merger Agreement or any Acquisition Proposal, such Stockholder shall:

(a) appear at such meeting or otherwise cause the Shares and any New Shares (as defined in Section 3 below) to be counted as present thereat for purposes of calculating a quorum;

(b) from and after the date hereof until the Expiration Date, vote (or cause to be voted), or deliver a written consent (or cause a written consent to be delivered) covering all of the Shares and any New Shares that Stockholder shall be entitled to so vote: (i) in favor of (A) all of the Homology Stockholder Matters and (B) any matter that could reasonably be expected to facilitate the Merger, the Concurrent Financing and the Contemplated Transactions; (ii) against any action or agreement that would result in a breach of any representation, warranty, covenant or obligation of Homology in the Merger Agreement; (iii) against any Acquisition Proposal, or any agreement, transaction or other matter that is intended to, or would reasonably be expected to, impede, interfere with, delay, postpone, discourage or materially and adversely affect the consummation of the Merger, the Concurrent Financing and all of the other Contemplated Transactions; (iv) to approve any proposal to adjourn or postpone the meeting to a later date, if there are not sufficient votes for the adoption of the Merger Agreement on the date on which such meeting is held.

2. Expiration Date. As used in this Agreement, the term "Expiration Date" shall mean the earlier to occur of (a) the Effective Time, (b) such date and time as the Merger Agreement shall be terminated pursuant to Article VIII thereof or otherwise, (c) any amendment to the Merger Agreement is effected without the Stockholder's written consent that increases the amount, or changes the form, of consideration payable to all stockholders of the Company pursuant to the terms of the Merger Agreement or (d) the mutual written agreement of the parties to terminate this Agreement.

3. Additional Acquisitions. Each Stockholder agrees that any shares of capital stock or other equity securities of Homology that such Stockholder acquires or with respect to which such Stockholder otherwise acquires sole or shared voting power (including any proxy) after the execution of this Agreement and prior to the Expiration Date, whether by the exercise of any Homology Options or otherwise, including, without limitation, by gift, succession, in the event of a stock split or as a dividend or distribution of any Shares ("New Shares"), shall be subject to the terms and conditions of this Agreement to the same extent as if they constituted the Shares.

4. Agreement to Retain Shares. From and after the date hereof until the Expiration Date, each Stockholder shall not, directly or indirectly, (a) sell, assign, transfer, tender, or otherwise dispose of (including, without limitation, by the creation of any Liens (as defined in Section 5(c) below)) any Shares or any New Shares, (b) deposit any Shares or New Shares into a voting trust or enter into a voting agreement or similar arrangement with respect to such Shares or New Shares or grant any proxy or power of attorney with respect thereto (other than this Agreement), (c) enter into any Contract, option, commitment or other arrangement or understanding with respect to the direct or indirect sale, transfer, assignment or other disposition of (including, without limitation, by the creation of any Liens) any Shares or New Shares, or (d) take any action that would make any representation or warranty of such Stockholder contained herein untrue or incorrect or have the effect of preventing or disabling such Stockholder from performing such Stockholder's obligations under this Agreement. Any action taken in violation of the foregoing sentence shall be null and void *ab initio*. Notwithstanding the foregoing, each Stockholder may make (1) transfers by will or by operation of Law or other transfers for estate-planning purposes, in which case this Agreement shall bind the transferee, (2) with respect to such Stockholder's Homology Options (and any Shares underlying such Homology Options) which expire on or prior to the Expiration Date, transfers, sale, or other disposition of Shares to Homology (or effecting a "net exercise" of a Homology Option) as payment for the (i) exercise price of such Stockholder's Homology Options and (ii) taxes applicable to the exercise of such Stockholder's Homology Options, (3) if Stockholder is an entity, partnership or limited liability company, a transfer to one or more equityholders, partners or members of Stockholder or to an Affiliated person, corporation, trust or other Entity controlling or under common control with Stockholder, or if Stockholder is a trust, a transfer to a beneficiary, provided that in each such case the applicable transferee has signed a voting agreement in substantially the form hereof, (4) make transfers that occur by operation of law pursuant to a qualified domestic relations order or in connection with a divorce settlement, and (5) transfers, sales or other dispositions as the Company may otherwise agree in writing in its sole discretion. If any voluntary or involuntary transfer of any Shares covered hereby shall occur (including a transfer or disposition permitted by Section 4(1) through Section 4(5), sale by a Stockholder's trustee in bankruptcy, or a sale to a purchaser at any creditor's or court sale), the transferee (which term, as used herein, shall include any and all transferees and subsequent transferees of the initial transferee) shall take and hold such Shares subject to all of the restrictions, liabilities and rights under this Agreement, which shall continue in full force and effect, notwithstanding that such transferee is not a Stockholder and has not executed a counterpart hereof or joinder hereto.

5. Representations and Warranties of Stockholder. Each Stockholder hereby, severally but not jointly, represents and warrants to Homology and the Company as follows:

(a) If such Stockholder is an Entity: (i) such Stockholder is duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated, organized or constituted, (ii) such Stockholder has all necessary power and authority to execute and deliver this Agreement, to perform such Stockholder's obligations hereunder and to consummate the transactions contemplated hereby, and (iii) the execution and delivery of this Agreement, performance of such Stockholder's obligations hereunder and the consummation of the transactions contemplated hereby by such Stockholder have been duly authorized by all necessary action on the part of such Stockholder and no other proceedings on the part of such Stockholder are necessary to authorize this Agreement, or to consummate the transactions contemplated hereby. If such Stockholder is an individual, such Stockholder has the legal capacity to execute and deliver this Agreement, to perform such Stockholder's obligations hereunder and to consummate the transactions contemplated hereby;

(b) this Agreement has been duly executed and delivered by or on behalf of such Stockholder and, to such Stockholder's knowledge and assuming this Agreement constitutes a valid and binding agreement of the Company and Homology, constitutes a valid and binding agreement with respect to such Stockholder, enforceable against such Stockholder in accordance with its terms, except as enforcement may be limited by general principles of equity whether applied in a court of Law or a court of equity and by bankruptcy, insolvency and similar Laws affecting creditors' rights and remedies generally;

(c) Stockholder has had the opportunity to review the Merger Agreement and this Agreement with counsel of Stockholder's own choosing. Stockholder has had an opportunity to review with its own tax advisors the tax consequences of the Merger and the Contemplated Transactions. Stockholder understands that it must rely solely on its advisors and not on any statements or representations made by Homology, the Company or any of their respective agents or representatives. Stockholder understands that such Stockholder (and not Homology, the Company or the Surviving Corporation) shall be responsible for such Stockholder's tax liability that may arise as a result of the Merger or the transactions contemplated by the Merger Agreement. Stockholder understands and acknowledges that the Company, Homology and Merger Sub are entering into the Merger Agreement in reliance upon Stockholder's execution, delivery and performance of this Agreement.

(d) such Stockholder beneficially owns the number of Shares indicated opposite such Stockholder's name on Schedule 1, which constitute all of the Shares owned by the Stockholder as of the date hereof. Such Stockholder will own any New Shares, free and clear of any liens, claims, charges or other encumbrances or restrictions of any kind whatsoever ("Liens"), and has sole or shared, and otherwise unrestricted, voting power with respect to such Shares or New Shares and none of the Shares or New Shares is subject to any voting trust or other agreement, arrangement or restriction with respect to the voting of the Shares or the New Shares, except as contemplated by this Agreement and the stockholder agreements and arrangements referenced in the Merger Agreement and except for customary arrangements with the Stockholder's prime broker and/or custodian;

(e) to the knowledge of such Stockholder, the execution and delivery of this Agreement by such Stockholder does not, and the performance by such Stockholder of his, her or its obligations hereunder and the compliance by such Stockholder with any provisions hereof will not, violate or conflict with, result in a material breach of or constitute a default (or an event that with notice or lapse of time or both would become a material default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, or result in the creation of any Liens on any Shares or New Shares pursuant to, any agreement, instrument, note, bond, mortgage, Contract, lease, license, permit or other obligation or any order, arbitration award, judgment or decree to which such Stockholder is a party or by which such Stockholder is bound, or any Law, statute, rule or regulation to which such Stockholder is subject or, in the event that such Stockholder is a corporation, partnership, trust or other Entity, any bylaw or other Organizational Document of such Stockholder; except for any of the foregoing as would not reasonably be expected to prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect;

(f) the execution and delivery of this Agreement by such Stockholder does not, and the performance of this Agreement by such Stockholder does not and will not, require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Authority or regulatory authority by such Stockholder except for applicable requirements, if any, of the Exchange Act, and except where the failure to obtain such consents, approvals, authorizations or permits, or to make such filings or notifications, would not prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect;

(g) no investment banker, broker, finder or other intermediary is entitled to a fee or commission from Homology or the Company in respect of this Agreement based upon any Contract made by or on behalf of such Stockholder; and

(h) as of the date of this Agreement, there is no Legal Proceeding pending or, to the knowledge of such Stockholder, threatened against such Stockholder that would reasonably be expected to prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect.

6. Irrevocable Proxy. Subject to the penultimate sentence of this Section 6, by execution of this Agreement, each Stockholder does hereby appoint the Company and any of its designees with full power of substitution and resubstitution, as such Stockholder's true and lawful attorney and irrevocable proxy, to the fullest extent of such Stockholder's rights with respect to the Shares, to vote and exercise all voting and related rights, including the right to sign such Stockholder's name (solely in its capacity as a stockholder) to any Stockholder consent, if such Stockholder fails to vote his, her or its Shares solely with respect to the matters set forth in Section 1 hereof by 5:00 p.m. (Eastern Time) on the day immediately preceding the meeting date (or date upon which written consents are requested to be submitted), provided the Stockholder has received information regarding the meeting or request for written consent at least five (5) Business Days before such shareholder meeting or any consent solicitation or other vote taken of the Company's stockholders. Each Stockholder intends this proxy to be irrevocable and coupled with an interest hereunder until the Expiration Date, hereby revokes any proxy previously granted by such Stockholder with respect to the Shares and represents that none of such previously-granted proxies are irrevocable. The Stockholder hereby affirms that the proxy set forth in this Section 6 is given in connection with, and granted in consideration of, and as an inducement to the Company, Homology and Merger Sub to enter into the Merger Agreement and that such proxy is given to secure the obligations of the Stockholder under Section 1. The irrevocable proxy and power of attorney granted herein shall survive the death or incapacity of such Stockholder and the obligations of such Stockholder shall be binding on such Stockholder's heirs, personal representatives, successors, transferees and assigns. Each Stockholder hereby agrees not to grant any subsequent powers of attorney or proxies with respect to any Shares with respect to the matters set forth in Section 1 until after the Expiration Date. With respect to any Shares that are owned beneficially by Stockholder but are not held of record by Stockholder (other than shares beneficially owned by Stockholder that are held in the name of a bank, broker or nominee), Stockholder shall take all action necessary to cause the record holder of such Shares to grant the irrevocable proxy and take all other actions provided for in this Section 6 with respect to such Shares. Notwithstanding anything contained herein to the contrary, this irrevocable proxy shall automatically terminate upon the Expiration Date.

7. No Legal Actions. Each Stockholder will not in its capacity as a stockholder of Homology bring, commence, institute, maintain, prosecute or voluntarily aid any Legal Proceeding which (i) challenges the validity or seeks to enjoin the operation of any provision of this Agreement or (ii) alleges that the execution and delivery of this Agreement by such Stockholder, either alone or together with the other voting agreements and proxies to be delivered in connection with the execution of the Merger Agreement, or the approval of the Merger Agreement and the Contemplated Transactions by the Homology Board, constitutes a breach of any fiduciary duty of the Homology Board or any member thereof.

8. Other Remedies; Specific Performance. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a party will be deemed cumulative with, and not exclusive of, any other remedy conferred hereby, or by Law or equity upon such party, and the exercise by a party of any one remedy will not preclude the exercise of any other remedy. The parties hereto agree that irreparable damage would occur in the event that any of the provisions of this Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that the parties shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof without the need of posting bond in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which they are entitled at Law or in equity.

9. Directors and Officers. This Agreement shall apply to each Stockholder solely in such Stockholder's capacity as a stockholder of Homology and/or holder of Homology Options and not in such Stockholder's capacity as a director, officer or employee of Homology or any of its Subsidiaries or in such Stockholder's capacity as a trustee or fiduciary of any employee benefit plan or trust. Notwithstanding any provision of this

Agreement to the contrary, nothing in this Agreement shall (or require Stockholder to attempt to) limit or restrict a director and/or officer of Homology in the exercise of his or her fiduciary duties consistent with the terms of the Merger Agreement as a director and/or officer of Homology or in his or her capacity as a trustee or fiduciary of any employee benefit plan or trust or prevent or be construed to create any obligation on the part of any director and/or officer of Homology or any trustee or fiduciary of any employee benefit plan or trust from taking any action in his or her capacity as such director, officer, trustee and/or fiduciary.

10. No Ownership Interest. Nothing contained in this Agreement shall be deemed to vest in the Company any direct or indirect ownership or incidence of ownership of or with respect to any Shares. All rights, ownership and economic benefits of and relating to the Shares shall remain vested in and belong to such Stockholder, and the Company does not have authority to manage, direct, superintend, restrict, regulate, govern, or administer any of the policies or operations of Homology or exercise any power or authority to direct such Stockholder in the voting of any of the Shares, except as otherwise provided herein.

11. Termination. This Agreement shall terminate and shall have no further force or effect as of the Expiration Date. Notwithstanding the foregoing, upon termination or expiration of this Agreement, no party shall have any further obligations or liabilities under this Agreement; *provided, however*, nothing set forth in this Section 11 or elsewhere in this Agreement shall relieve any party from liability for any fraud or for any willful and material breach of this Agreement prior to termination hereof.

12. Further Assurances. Each Stockholder shall, from time to time, execute and deliver, or cause to be executed and delivered, such additional or further consents, documents and other instruments as the Company or Homology may reasonably request for the purpose of effectively carrying out the transactions contemplated by this Agreement and the Contemplated Transactions.

13. Disclosure. Each Stockholder hereby agrees that Homology and the Company may publish and disclose in the Proxy Statement, any prospectus filed with any regulatory authority in connection with the Contemplated Transactions and any related documents filed with such regulatory authority and as otherwise required by Law, such Stockholder's identity and ownership of Shares and the nature of such Stockholder's commitments, arrangements and understandings under this Agreement and may further file this Agreement as an exhibit to the Proxy Statement or prospectus or in any other filing made by Homology or the Company as required by Law or the terms of the Merger Agreement, including with the SEC or other regulatory authority, relating to the Contemplated Transactions, all subject to prior review and a reasonable opportunity to comment by Stockholder's counsel. Prior to the Closing, each Stockholder shall not, and shall use its reasonable best efforts to cause its representatives not to, directly or indirectly, make any press release, public announcement or other public communication regarding the Merger without the prior written consent of Homology and the Company, *provided* that the foregoing shall not limit or affect any actions taken by such Stockholder (or any affiliated officer or director of such Stockholder) that would be permitted to be taken by such Stockholder, Homology or the Company pursuant to the Merger Agreement; *provided*, *further*, that the foregoing shall not effect any actions of Stockholder the prohibition of which would be prohibited under applicable Law and shall not prohibit Stockholder or its affiliates from making any publicly-available filings required by applicable law, regulation or legal process.

14. Notice. All notices and other communications hereunder shall be in writing and shall be deemed given if delivered personally or sent by overnight courier (providing proof of delivery), by facsimile transmission (providing confirmation of transmission) or by electronic transmission (providing confirmation of transmission) to the Company or Homology, as the case may be, in accordance with Section 9.7 of the Merger Agreement and to each Stockholder at his, her or its address or email address (providing confirmation of transmission) set forth on Schedule 1 attached hereto (or at such other address for a party as shall be specified by like notice).

15. Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Agreement is invalid or unenforceable, the parties hereto agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the parties hereto agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

16. Assignability. This Agreement shall be binding upon, and shall be enforceable by and inure solely to the benefit of, the parties hereto and their respective successors and assigns; *provided, however*, that neither this Agreement nor any of a party's rights or obligations hereunder may be assigned or delegated by such party without the prior written consent of the other parties hereto, and any attempted assignment or delegation of this Agreement or any of such rights or obligations by such party without the other party's prior written consent shall be void and of no effect. Nothing in this Agreement, express or implied, is intended to or shall confer upon any Person (other than the parties hereto) any right, benefit or remedy of any nature whatsoever under or by reason of this Agreement.

17. No Waivers. No waivers of any breach of this Agreement extended by the Company or Homology to such Stockholder shall be construed as a waiver of any rights or remedies of the Company or Homology, as applicable, with respect to any other stockholder of Homology who has executed an agreement substantially in the form of this Agreement with respect to Shares held or subsequently held by such stockholder or with respect to any subsequent breach of Stockholder or any other such stockholder of Homology. No waiver of any provisions hereof by any party shall be deemed a waiver of any other provisions hereof by any such party, nor shall any such waiver be deemed a continuing waiver of any provision hereof by such party.

18. Applicable Law; Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the Laws of the state of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of Laws. In any action or Legal Proceeding between any of the parties arising out of or relating to this Agreement, each of the parties: (i) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the state of Delaware or to the extent such court does not have subject matter jurisdiction, the Superior Court of the State of Delaware or the United States District Court for the District of Delaware, (ii) agrees that all claims in respect of such action or Legal Proceeding shall be heard and determined exclusively in accordance with clause (i) of this Section 18, (iii) waives any objection to laying venue in any such action or Legal Proceeding in such courts, (iv) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any party, and (v) agrees that service of process upon such party in any such action or Legal Proceeding shall be effective if notice is given in accordance with Section 14 of this Agreement. Each party irrevocably consents to service of process inside or outside the territorial jurisdiction of the courts referred to in this Section 18 in the manner provided for notices in Section 14. Nothing in this Agreement will affect the right of any party to serve process in any other manner permitted by applicable Law.

19. Waiver of Jury Trial. The parties hereto hereby waive any right to trial by jury with respect to any action or Legal Proceeding related to or arising out of this Agreement, any document executed in connection herewith and the matters contemplated hereby and thereby.

20. No Agreement Until Executed. Irrespective of negotiations among the parties or the exchanging of drafts of this Agreement, this Agreement shall not constitute or be deemed to evidence a Contract, agreement, arrangement or understanding between the parties hereto unless and until (a) the Homology Board has approved,

for purposes of any applicable anti-takeover Laws and regulations and any applicable provision of the certificate of incorporation of Homology, the Merger Agreement and the Contemplated Transactions, (b) the Merger Agreement is executed by all parties thereto, and (c) this Agreement is executed by all parties hereto.

21. Entire Agreement; Counterparts; Exchanges by Electronic Transmission. This Agreement and the other agreements referred to in this Agreement constitute the entire agreement and supersede all prior agreements and understandings, both written and oral, among or between any of the parties with respect to the subject matter hereof and thereof. This Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Agreement (in counterparts or otherwise) by all parties by facsimile or electronic transmission via ".pdf" shall be sufficient to bind the parties to the terms and conditions of this Agreement.

22. Amendment. This Agreement may not be amended, supplemented or modified, and no provisions hereof may be modified or waived, except by an instrument in writing signed on behalf of each party hereto; *provided*, *however*, that the rights or obligations of any Stockholder may be waived, amended or otherwise modified in a writing signed by Homology, the Company and such Stockholder.

23. Fees and Expenses. Except as otherwise specifically provided herein, the Merger Agreement or any other agreement contemplated by the Merger Agreement to which a party hereto is a party, each party hereto shall bear its own expenses in connection with this Agreement and the transactions contemplated hereby.

24. Voluntary Execution of Agreement. This Agreement is executed voluntarily and without any duress or undue influence on the part or behalf of the parties. Each of the parties hereby acknowledges, represents and warrants that (i) it has read and fully understood the Merger Agreement, this Agreement and the implications and consequences thereof; (ii) it has been represented in the preparation, negotiation, and execution of this Agreement by legal counsel of its own choice, or it has made a voluntary and informed decision to decline to seek such counsel; and (iii) it is fully aware of the legal and binding effect of this Agreement.

25. Definition of Merger Agreement. For purposes of this Agreement, the term "Merger Agreement" may include such agreement as amended or modified as long as such amendments or modifications (a) do not (i) change the form or amount of consideration payable under the Merger Agreement, (ii) extend the Outside Date past May 16, 2024 (other than any extension provided for in Section 8.1(b) of the Merger Agreement with respect to the Registration Statement), or (iii) otherwise change the terms and conditions of the Merger, the Concurrent Financing or the other Contemplated Transaction in a manner materially adverse to such Stockholder or (b) have been agreed to in writing by such Stockholder.

26. Construction.

(a) For purposes of this Agreement, whenever the context requires: the singular number shall include the plural, and vice versa; the masculine gender shall include the feminine and neuter genders; the feminine gender shall include the masculine and neuter genders; and the neuter gender shall include masculine and feminine genders.

(b) The parties hereto agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be applied in the construction or interpretation of this Agreement.

(c) As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

(d) Except as otherwise indicated, all references in this Agreement to "Sections," and "Schedules" are intended to refer to Sections of this Agreement and Schedules to this Agreement, respectively.

(e) The underlined headings contained in this Agreement are for convenience of reference only, shall not be deemed to be a part of this Agreement and shall not be referred to in connection with the construction or interpretation of this Agreement.

[*Remainder of Page has Intentionally Been Left Blank*]

EXECUTED as of the date first above written.

[STOCKHOLDER]

Signature:_____

[Signature Page to Homology Stockholder Support Agreement]

EXECUTED as of the date first above written.

HOMOLOGY MEDICINES, INC.

By: _____
Name:
Title:

Q32 BIO INC.

By: _____
Name:
Title:

[Signature Page to Homology Stockholder Support Agreement]

SCHEDULE 1

[Intentionally Omitted]

Annex C

Final Form

Q32 BIO INC.

SUPPORT AGREEMENT

THIS SUPPORT AGREEMENT (this "Agreement"), dated as of November 16, 2023 is made by and among Homology Medicines, Inc., a Delaware corporation ("Homology"), Q32 Bio Inc., a Delaware corporation (the "Company"), and the undersigned holders (each a "Stockholder") of shares of capital stock (the "Shares") of the Company.

WHEREAS, Homology, Kenobi Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of Homology ("Merger Sub"), and the Company, have entered into an Agreement and Plan of Merger, dated as of even date herewith (the "Merger Agreement"), providing for the merger of Merger Sub with and into the Company (the "Merger");

WHEREAS, each Stockholder beneficially owns and has sole or shared voting power with respect to the number of Shares, and holds Q32 Options to acquire the number of Shares, indicated opposite such Stockholder's name on Schedule 1 attached hereto;

WHEREAS, as an inducement and a condition to the willingness of the Company to enter into the Merger Agreement, each Stockholder has agreed to enter into and perform this Agreement; and

WHEREAS, all capitalized terms used in this Agreement without definition herein shall have the meanings ascribed to them in the Merger Agreement.

NOW, THEREFORE, in consideration of, and as a condition to, the Company's entering into the Merger Agreement, each Stockholder, Homology and the Company agree as follows:

1. Agreement to Vote Shares. Each Stockholder agrees that, prior to the Expiration Date (as defined in Section 2 below), at any meeting of the stockholders of the Company or any adjournment or postponement thereof, or in connection with any written consent of the stockholders (or any class or series of stockholders, as applicable) of the Company, with respect to the Merger, the Merger Agreement or any Acquisition Proposal, such Stockholder shall:

(a) appear at such meeting or otherwise cause the Shares and any New Shares (as defined in Section 3 below) to be counted as present thereat for purposes of calculating a quorum;

(b) from and after the date hereof until the Expiration Date, vote (or cause to be voted), or deliver a written consent (or cause a written consent to be delivered) covering all of the Shares and any New Shares that Stockholder shall be entitled to so vote: (i) in favor of (A) all of the matters set forth in the Q32 Stockholder Written Consent [, which Q32 Stockholder Written Consent shall be in a form acceptable to Stockholder][1] and (B) any matter that could reasonably be expected to facilitate the Merger, the Concurrent Financing and the Contemplated Transactions; (ii) against any action or agreement that would result in a breach of any representation, warranty, covenant or obligation of the Company in the Merger Agreement; (iii) against any Acquisition Proposal, or any agreement, transaction or other matter or action that is intended to, or would reasonably be expected to, impede, interfere with, delay, postpone, discourage or materially and adversely affect the consummation of the Merger, the Concurrent Financing and all of the other Contemplated Transactions; (iv) to approve any proposal to adjourn or postpone the meeting to a later date, if there are not sufficient votes for the adoption of the Merger Agreement on the date on which such meeting is held; and (v) to the extent applicable, in favor of an election to convert all of the Company Preferred Stock held by Stockholder into Company Common Stock [in accordance with the provisions of the Company's certificate of incorporation as in effect on the date hereof].[1] Stockholder shall not take or commit or agree to take any action inconsistent with the foregoing.

[1] The bracketed language is applicable to certain institutional investors.

2. Expiration Date. As used in this Agreement, the term "Expiration Date" shall mean the earlier to occur of (a) the Effective Time, (b) such date and time as the Merger Agreement shall be terminated pursuant to Article VIII thereof or otherwise, (c) any amendment to the Merger Agreement is effected without the Stockholder's written consent that [(i)] [1] decreases the amount, or changes the form, of consideration payable to all stockholders of the Company pursuant to the terms of the Merger Agreement or [(ii) otherwise changes the terms and conditions of the Merger, the Concurrent Financing or the other Contemplated Transaction in a manner materially adverse to such Stockholder,][1] (d) the mutual written agreement of the parties to terminate this Agreement [or (e) the one year anniversary of the date of this Agreement].[1]

3. Additional Acquisitions. Each Stockholder agrees that any shares of capital stock or other equity securities of the Company that such Stockholder acquires or with respect to which such Stockholder otherwise acquires sole or shared voting power (including any proxy) after the execution of this Agreement and prior to the Expiration Date, whether by the exercise of any Q32 Options, Q32 Warrants or otherwise, including, without limitation, by gift, succession, in the event of a stock split or as a dividend or distribution of any Shares ("New Shares"), shall be subject to the terms and conditions of this Agreement to the same extent as if they constituted the Shares.

4. Agreement to Retain Shares. From and after the date hereof until the Expiration Date, each Stockholder shall not, directly or indirectly, (a) sell, assign, transfer, tender, or otherwise dispose of (including, without limitation, by the creation of any Liens (as defined in Section 5(c) below)) any Shares or any New Shares, (b) deposit any Shares or New Shares into a voting trust or enter into a voting agreement or similar arrangement with respect to such Shares or New Shares or grant any proxy or power of attorney with respect thereto (other than this Agreement), (c) enter into any Contract, option, commitment or other arrangement or understanding with respect to the direct or indirect sale, transfer, assignment or other disposition of (including, without limitation, by the creation of any Liens) any Shares or New Shares, or (d) take any action that would make any representation or warranty of such Stockholder contained herein untrue or incorrect or have the effect of preventing or disabling such Stockholder from performing such Stockholder's obligations under this Agreement. Any action taken in violation of the foregoing sentence shall be null and void *ab initio*. Notwithstanding the foregoing, each Stockholder may make (1) transfers by will or by operation of Law or other transfers for estate-planning purposes, in which case this Agreement shall bind the transferee, (2) with respect to such Stockholder's Q32 Options (and any Shares underlying such Q32 Options) which expire on or prior to the Expiration Date, transfers, sale, or other disposition of Shares to the Company (or effecting a "net exercise" of a Q32 Option) as payment for the (i) exercise price of such Stockholder's Q32 Options and (ii) taxes applicable to the exercise of such Stockholder's Q32 Options, (3) if Stockholder is an entity, partnership or limited liability company, a transfer to one or more equityholders, partners or members of Stockholder or to an Affiliated person, corporation, trust or other Entity controlling or under common control with Stockholder [(including, for the avoidance of doubt, a fund managed by the same manager or managing member or general partner or management company or by an entity controlling, controlled by or under common control with such manager or managing member or general partner or management company of the undersigned)][1], or if Stockholder is a trust, a transfer to a beneficiary, provided that in each such case the applicable transferee has signed a voting agreement in substantially the form hereof, (4) make transfers that occur by operation of law pursuant to a qualified domestic relations order or in connection with a divorce settlement, and (5) transfers, sales or other dispositions as the Company may otherwise agree in writing in its sole discretion. If any voluntary or involuntary transfer of any Shares covered hereby shall occur (including a transfer or disposition permitted by Section 4(1) through Section 4(5), sale by a Stockholder's trustee in bankruptcy, or a sale to a purchaser at any creditor's or court sale), the transferee (which term, as used herein, shall include any and all transferees and subsequent transferees of the initial transferee) shall take and hold such Shares subject to all of the restrictions, liabilities and rights under this Agreement, which shall continue in full force and effect, notwithstanding that such transferee is not a Stockholder and has not executed a counterpart hereof or joinder hereto.

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1 The bracketed language is applicable to certain institutional investors.

5. Representations and Warranties of Stockholder. Each Stockholder hereby, severally but not jointly, represents and warrants to Homology and the Company as follows:

(a) If such Stockholder is an Entity: (i) such Stockholder is duly organized, validly existing and in good standing under the laws of the jurisdiction in which it is incorporated, organized or constituted, (ii) such Stockholder has all necessary power and authority to execute and deliver this Agreement, to perform such Stockholder's obligations hereunder and to consummate the transactions contemplated hereby, and (iii) the execution and delivery of this Agreement, performance of such Stockholder's obligations hereunder and the consummation of the transactions contemplated hereby by such Stockholder have been duly authorized by all necessary action on the part of such Stockholder and no other proceedings on the part of such Stockholder are necessary to authorize this Agreement, or to consummate the transactions contemplated hereby. If such Stockholder is an individual, such Stockholder has the legal capacity to execute and deliver this Agreement, to perform such Stockholder's obligations hereunder and to consummate the transactions contemplated hereby;

(b) this Agreement has been duly executed and delivered by or on behalf of such Stockholder and, to such Stockholder's knowledge and assuming this Agreement constitutes a valid and binding agreement of the Company and Homology, constitutes a valid and binding agreement with respect to such Stockholder, enforceable against such Stockholder in accordance with its terms, except as enforcement may be limited by general principles of equity whether applied in a court of Law or a court of equity and by bankruptcy, insolvency and similar Laws affecting creditors' rights and remedies generally;

(c) Stockholder has had the opportunity to review the Merger Agreement, including the provisions relating to the payment and allocation of the consideration to be paid to the stockholders of the Company, and this Agreement with counsel of Stockholder's own choosing. Stockholder has had an opportunity to review with its own tax advisors the tax consequences of the Merger and the Contemplated Transactions. Stockholder understands that it must rely solely on its advisors and not on any statements or representations made by Homology, the Company or any of their respective agents or representatives [, except as set forth in the Subscription Agreement (with respect to those Stockholders participating in the Concurrent Financing)][1]. Stockholder understands that such Stockholder (and not Homology, the Company or the Surviving Corporation) shall be responsible for such Stockholder's tax liability that may arise as a result of the Merger or the transactions contemplated by the Merger Agreement. Stockholder understands and acknowledges that the Company, Homology and Merger Sub are entering into the Merger Agreement in reliance upon Stockholder's execution, delivery and performance of this Agreement.

(d) such Stockholder beneficially owns the number of Shares indicated opposite such Stockholder's name on Schedule 1, which constitute all of the Shares owned by the Stockholder as of the date hereof. Such Stockholder will own any New Shares, free and clear of any liens, claims, charges or other encumbrances or restrictions of any kind whatsoever ("Liens"), and has sole or shared, and otherwise unrestricted, voting power with respect to such Shares or New Shares and none of the Shares or New Shares is subject to any voting trust or other agreement, arrangement or restriction with respect to the voting of the Shares or the New Shares, except as contemplated by this Agreement and the stockholder agreements and arrangements referenced in the Merger Agreement and except for customary arrangements with the Stockholder's prime broker and/or custodian;

(e) to the knowledge of such Stockholder, the execution and delivery of this Agreement by such Stockholder does not, and the performance by such Stockholder of his, her or its obligations hereunder and the compliance by such Stockholder with any provisions hereof will not, violate or conflict with, result in a material breach of or constitute a default (or an event that with notice or lapse of time or both would become a material default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, or result in the creation of any Liens on any Shares or New Shares pursuant to, any agreement, instrument, note, bond, mortgage, Contract, lease, license, permit or other obligation or any order, arbitration award, judgment or decree to which such Stockholder is a party or by which such

1 The bracketed language is applicable to certain institutional investors.

Stockholder is bound, or any Law, statute, rule or regulation to which such Stockholder is subject or, in the event that such Stockholder is a corporation, partnership, trust or other Entity, any bylaw or other Organizational Document of such Stockholder; except for any of the foregoing as would not reasonably be expected to prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect;

(f) the execution and delivery of this Agreement by such Stockholder does not, and the performance of this Agreement by such Stockholder does not and will not, require any consent, approval, authorization or permit of, or filing with or notification to, any Governmental Authority or regulatory authority by such Stockholder except for applicable requirements, if any, of the Exchange Act, and except where the failure to obtain such consents, approvals, authorizations or permits, or to make such filings or notifications, would not prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect;

(g) no investment banker, broker, finder or other intermediary is entitled to a fee or commission from Homology or the Company in respect of this Agreement based upon any Contract made by or on behalf of such Stockholder; and

(h) as of the date of this Agreement, there is no Legal Proceeding pending or, to the knowledge of such Stockholder, threatened against such Stockholder that would reasonably be expected to prevent or delay the performance by such Stockholder of his, her or its obligations under this Agreement in any material respect.

6. Irrevocable Proxy. Subject to the penultimate sentence of this Section 6, by execution of this Agreement, each Stockholder does hereby appoint the Company and any of its designees with full power of substitution and resubstitution, as such Stockholder's true and lawful attorney and irrevocable proxy, to the fullest extent of such Stockholder's rights with respect to the Shares, to vote and exercise all voting and related rights, including the right to sign such Stockholder's name (solely in its capacity as a stockholder) to any Stockholder consent, if such Stockholder fails to vote his, her or its Shares solely with respect to the matters set forth in Section 1 [(b)][1] hereof by 5:00 p.m. (Eastern Time) on the day immediately preceding the meeting date (or date upon which written consents are requested to be submitted), provided the Stockholder has received information regarding the meeting or request for written consent at least five (5) Business Days before such shareholder meeting or any consent solicitation or other vote taken of the Company's stockholders. Each Stockholder intends this proxy to be irrevocable and coupled with an interest hereunder until the Expiration Date, hereby revokes any proxy previously granted by such Stockholder with respect to the Shares and represents that none of such previously-granted proxies are irrevocable. The Stockholder hereby affirms that the proxy set forth in this Section 6 is given in connection with, and granted in consideration of, and as an inducement to the Company, Homology and Merger Sub to enter into the Merger Agreement and that such proxy is given to secure the obligations of the Stockholder under Section 1. The irrevocable proxy and power of attorney granted herein shall survive the death or incapacity of such Stockholder and the obligations of such Stockholder shall be binding on such Stockholder's heirs, personal representatives, successors, transferees and assigns. Each Stockholder hereby agrees not to grant any subsequent powers of attorney or proxies with respect to any Shares with respect to the matters set forth in Section 1 until after the Expiration Date. With respect to any Shares that are owned beneficially by Stockholder but are not held of record by Stockholder (other than shares beneficially owned by Stockholder that are held in the name of a bank, broker or nominee), Stockholder shall take all action necessary to cause the record holder of such Shares to grant the irrevocable proxy and take all other actions provided for in this Section 6 with respect to such Shares. Notwithstanding anything contained herein to the contrary, this irrevocable proxy shall automatically terminate upon the Expiration Date.

7. Waiver of Appraisal Rights. Each Stockholder hereby waives, and agrees not to exercise or assert, any appraisal rights under applicable Law, including Section 262 of Delaware Law, in connection with the Merger.

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1 The bracketed language is applicable to certain institutional investors.

8. No Legal Actions. Each Stockholder will not in its capacity as a stockholder of the Company bring, commence, institute, maintain, prosecute or voluntarily aid any Legal Proceeding which (i) challenges the validity or seeks to enjoin the operation of any provision of this Agreement or (ii) alleges that the execution and delivery of this Agreement by such Stockholder, either alone or together with the other voting agreements and proxies to be delivered in connection with the execution of the Merger Agreement, or the approval of the Merger Agreement and the Contemplated Transactions by the Company Board, constitutes a breach of any fiduciary duty of the Q32 Board or any member thereof.

9. Other Remedies; Specific Performance. Except as otherwise provided herein, any and all remedies herein expressly conferred upon a party will be deemed cumulative with, and not exclusive of, any other remedy conferred hereby, or by Law or equity upon such party, and the exercise by a party of any one remedy will not preclude the exercise of any other remedy. The parties hereto agree that irreparable damage would occur in the event that any of the provisions of this Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that the parties shall be entitled to an injunction or injunctions to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof without the need of posting bond in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which they are entitled at Law or in equity.

10. Directors and Officers. This Agreement shall apply to each Stockholder solely in such Stockholder's capacity as a stockholder of the Company and/or holder of Q32 Options and/or Q32 Warrants not in such Stockholder's capacity as a director, officer or employee of the Company or any of its Subsidiaries or in such Stockholder's capacity as a trustee or fiduciary of any employee benefit plan or trust. Notwithstanding any provision of this Agreement to the contrary, nothing in this Agreement shall (or require Stockholder to attempt to) limit or restrict a director and/or officer of the Company in the exercise of his or her fiduciary duties consistent with the terms of the Merger Agreement as a director and/or officer of the Company or in his or her capacity as a trustee or fiduciary of any employee benefit plan or trust or prevent or be construed to create any obligation on the part of any director and/or officer of the Company or any trustee or fiduciary of any employee benefit plan or trust from taking any action in his or her capacity as such director, officer, trustee and/or fiduciary.

11. No Ownership Interest. Nothing contained in this Agreement shall be deemed to vest in the Company any direct or indirect ownership or incidence of ownership of or with respect to any Shares. All rights, ownership and economic benefits of and relating to the Shares shall remain vested in and belong to such Stockholder, and the Company does not have authority to manage, direct, superintend, restrict, regulate, govern, or administer any of the policies or operations of the Company or exercise any power or authority to direct such Stockholder in the voting of any of the Shares, except as otherwise provided herein.

12. Termination. This Agreement shall terminate and shall have no further force or effect as of the Expiration Date. Notwithstanding the foregoing, upon termination or expiration of this Agreement, no party shall have any further obligations or liabilities under this Agreement; *provided*, *however*, nothing set forth in this Section 12 or elsewhere in this Agreement shall relieve any party from liability for any fraud or for any willful and material breach of this Agreement prior to termination hereof.

13. Further Assurances. Each Stockholder shall, from time to time, execute and deliver, or cause to be executed and delivered, such additional or further consents, documents and other instruments as the Company or Homology may reasonably request for the purpose of effectively carrying out the transactions contemplated by this Agreement and the Contemplated Transactions. [Reserved][1]

14. Disclosure. Each Stockholder hereby agrees that Homology and the Company may publish and disclose in the Proxy Statement, any prospectus filed with any regulatory authority in connection with the Contemplated Transactions and any related documents filed with such regulatory authority and as otherwise required by Law,

[1] The bracketed language is applicable to certain institutional investors.

such Stockholder's identity and ownership of Shares and the nature of such Stockholder's commitments, arrangements and understandings under this Agreement and may further file this Agreement as an exhibit to the Proxy Statement or prospectus or in any other filing made by Homology or the Company as required by Law or the terms of the Merger Agreement, including with the SEC or other regulatory authority, relating to the Contemplated Transactions, all subject to prior review and a reasonable opportunity to comment by Stockholder's counsel. Prior to the Closing, each Stockholder shall not, and shall use its reasonable best efforts to cause its representatives not to, directly or indirectly, make any press release, public announcement or other public communication regarding the Merger without the prior written consent of Homology and the Company, *provided* that the foregoing shall not limit or affect any actions taken by such Stockholder (or any affiliated officer or director of such Stockholder) that would be permitted to be taken by such Stockholder, Homology or the Company pursuant to the Merger Agreement; *provided*, *further*, that the foregoing shall not effect any actions of Stockholder the prohibition of which would be prohibited under applicable Law and shall not prohibit Stockholder or its affiliates from making any publicly-available filings required by applicable law, regulation or legal process.

15. Notice. All notices and other communications hereunder shall be in writing and shall be deemed given if delivered personally or sent by overnight courier (providing proof of delivery), by facsimile transmission (providing confirmation of transmission) or by electronic transmission (providing confirmation of transmission) to the Company or Homology, as the case may be, in accordance with Section 9.7 of the Merger Agreement and to each Stockholder at his, her or its address or email address (providing confirmation of transmission) set forth on Schedule 1 attached hereto (or at such other address for a party as shall be specified by like notice).

16. Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction shall not affect the validity or enforceability of the remaining terms and provisions of this Agreement or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. If a final judgment of a court of competent jurisdiction declares that any term or provision of this Agreement is invalid or unenforceable, the parties hereto agree that the court making such determination shall have the power to limit such term or provision, to delete specific words or phrases or to replace such term or provision with a term or provision that is valid and enforceable and that comes closest to expressing the intention of the invalid or unenforceable term or provision, and this Agreement shall be valid and enforceable as so modified. In the event such court does not exercise the power granted to it in the prior sentence, the parties hereto agree to replace such invalid or unenforceable term or provision with a valid and enforceable term or provision that will achieve, to the extent possible, the economic, business and other purposes of such invalid or unenforceable term or provision.

17. Assignability. This Agreement shall be binding upon, and shall be enforceable by and inure solely to the benefit of, the parties hereto and their respective successors and assigns; *provided, however*, that neither this Agreement nor any of a party's rights or obligations hereunder may be assigned or delegated by such party without the prior written consent of the other parties hereto, and any attempted assignment or delegation of this Agreement or any of such rights or obligations by such party without the other party's prior written consent shall be void and of no effect. Nothing in this Agreement, express or implied, is intended to or shall confer upon any Person (other than the parties hereto) any right, benefit or remedy of any nature whatsoever under or by reason of this Agreement.

18. No Waivers. No waivers of any breach of this Agreement extended by the Company or Homology to such Stockholder shall be construed as a waiver of any rights or remedies of the Company or Homology, as applicable, with respect to any other stockholder of the Company who has executed an agreement substantially in the form of this Agreement with respect to Shares held or subsequently held by such stockholder or with respect to any subsequent breach of Stockholder or any other such stockholder of the Company. No waiver of any provisions hereof by any party shall be deemed a waiver of any other provisions hereof by any such party, nor shall any such waiver be deemed a continuing waiver of any provision hereof by such party.

19. Applicable Law; Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the Laws of the state of Delaware, regardless of the Laws that might otherwise govern under applicable principles of conflicts of Laws. In any action or Legal Proceeding between any of the parties arising out of or relating to this Agreement, each of the parties: (i) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Court of Chancery of the state of Delaware or to the extent such court does not have subject matter jurisdiction, the Superior Court of the State of Delaware or the United States District Court for the District of Delaware, (ii) agrees that all claims in respect of such action or Legal Proceeding shall be heard and determined exclusively in accordance with clause (i) of this Section 19, (iii) waives any objection to laying venue in any such action or Legal Proceeding in such courts, (iv) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any party, and (v) agrees that service of process upon such party in any such action or Legal Proceeding shall be effective if notice is given in accordance with Section 15 of this Agreement. Each party irrevocably consents to service of process inside or outside the territorial jurisdiction of the courts referred to in this Section 19 in the manner provided for notices in Section 15. Nothing in this Agreement will affect the right of any party to serve process in any other manner permitted by applicable Law.

20. Waiver of Jury Trial. The parties hereto hereby waive any right to trial by jury with respect to any action or Legal Proceeding related to or arising out of this Agreement, any document executed in connection herewith and the matters contemplated hereby and thereby.

21. No Agreement Until Executed. Irrespective of negotiations among the parties or the exchanging of drafts of this Agreement, this Agreement shall not constitute or be deemed to evidence a Contract, agreement, arrangement or understanding between the parties hereto unless and until (a) the Q32 Board has approved, for purposes of any applicable anti-takeover Laws and regulations and any applicable provision of the certificate of incorporation of the Company, the Merger Agreement and the Contemplated Transactions, (b) the Merger Agreement is executed by all parties thereto, and (c) this Agreement is executed by all parties hereto.

22. Entire Agreement; Counterparts; Exchanges by Electronic Transmission. This Agreement and the other agreements referred to in this Agreement constitute the entire agreement and supersede all prior agreements and understandings, both written and oral, among or between any of the parties with respect to the subject matter hereof and thereof. This Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Agreement (in counterparts or otherwise) by all parties by facsimile or electronic transmission via ".pdf" shall be sufficient to bind the parties to the terms and conditions of this Agreement.

23. Amendment. This Agreement may not be amended, supplemented or modified, and no provisions hereof may be modified or waived, except by an instrument in writing signed on behalf of each party hereto; *provided*, *however*, that the rights or obligations of any Stockholder may be waived, amended or otherwise modified in a writing signed by Homology, the Company and such Stockholder.

24. Fees and Expenses. Except as otherwise specifically provided herein, [or in any separate agreement with the Company,][1] the Merger Agreement or any other agreement contemplated by the Merger Agreement to which a party hereto is a party, each party hereto shall bear its own expenses in connection with this Agreement and the transactions contemplated hereby.

25. Voluntary Execution of Agreement. This Agreement is executed voluntarily and without any duress or undue influence on the part or behalf of the parties. Each of the parties hereby acknowledges, represents and warrants that (i) it has read and fully understood the Merger Agreement including the provisions relating to the payment and allocation of the consideration to be paid to stockholders of the Company as well as holders of Q32 Options, this Agreement, and the implications and consequences thereof; (ii) it has been represented in the

[1] The bracketed language is applicable to certain institutional investors.

preparation, negotiation, and execution of this Agreement by legal counsel of its own choice, or it has made a voluntary and informed decision to decline to seek such counsel; and (iii) it is fully aware of the legal and binding effect of this Agreement.

26. Definition of Merger Agreement. For purposes of this Agreement, the term "Merger Agreement" may include such agreement as amended or modified as long as such amendments or modifications (a) do not (i) change the form or amount of consideration payable under the Merger Agreement, (ii) extend the Outside Date past May 16, 2024 (other than any extension provided for in Section 8.1(b) of the Merger Agreement with respect to the Registration Statement), or (iii) otherwise change the terms and conditions of the Merger, the Concurrent Financing or the other Contemplated Transaction in a manner materially adverse to such Stockholder or (b) have been agreed to in writing by such Stockholder.

27. Construction.

(a) For purposes of this Agreement, whenever the context requires: the singular number shall include the plural, and vice versa; the masculine gender shall include the feminine and neuter genders; the feminine gender shall include the masculine and neuter genders; and the neuter gender shall include masculine and feminine genders.

(b) The parties hereto agree that any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not be applied in the construction or interpretation of this Agreement.

(c) As used in this Agreement, the words "include" and "including," and variations thereof, shall not be deemed to be terms of limitation, but rather shall be deemed to be followed by the words "without limitation."

(d) Except as otherwise indicated, all references in this Agreement to "Sections," and "Schedules" are intended to refer to Sections of this Agreement and Schedules to this Agreement, respectively.

(e) The underlined headings contained in this Agreement are for convenience of reference only, shall not be deemed to be a part of this Agreement and shall not be referred to in connection with the construction or interpretation of this Agreement.

[*Remainder of Page has Intentionally Been Left Blank*]

EXECUTED as of the date first above written.

[STOCKHOLDER]

Signature:_____

[Signature Page to Q32 Support Agreement]

EXECUTED as of the date first above written.

HOMOLOGY MEDICINES, INC.

By: _____
Name:
Title:

Q32 BIO INC.

By: _____
Name:
Title:

[Signature Page to Q32 Support Agreement]

SCHEDULE 1

[Intentionally Omitted]

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Annex D

CONTINGENT VALUE RIGHTS AGREEMENT

BETWEEN

HOMOLOGY MEDICINES, INC.

and

EQUINITI TRUST COMPANY, LLC, as Rights Agent

Dated as of [*]

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FORM OF

CONTINGENT VALUE RIGHTS AGREEMENT

THIS CONTINGENT VALUE RIGHTS AGREEMENT (this "Agreement"), dated as of [*], is entered into by and between Homology Medicines, Inc., a Delaware corporation ("Homology"), and Equiniti Trust Company, LLC, a New York limited liability company ("EQ"), as initial Rights Agent (as defined herein).

PREAMBLE

WHEREAS, Homology, Kenobi Merger Sub, Inc., a Delaware corporation and wholly-owned subsidiary of Homology ("Merger Sub"), and Q32 Bio Inc., a Delaware corporation (the "Company"), have entered into an Agreement and Plan of Merger, dated as of November 16, 2023 (the "Merger Agreement"), pursuant to which Merger Sub will merge with and into the Company (the "Merger"), with the Company surviving the Merger as a wholly-owned subsidiary of Homology (the "Surviving Corporation");

WHEREAS, in connection with the Merger Agreement, Homology has agreed to provide to the Holders (as defined herein) contingent value rights as hereinafter described;

WHEREAS, the parties have done all things necessary to make the contingent value rights, when issued pursuant to this Agreement, the valid obligations of Homology and to make this Agreement a valid and binding agreement of Homology, in accordance with its terms; and

NOW, THEREFORE, in consideration of the premises and the consummation of the transactions referred to above, it is mutually covenanted and agreed, for the proportionate benefit of all Holders, as follows:

ARTICLE 1
DEFINITIONS

Section 1.1 *Definitions*.

Capitalized terms used but not otherwise defined herein have the meanings ascribed thereto in the Merger Agreement. The following terms have the meanings ascribed to them as follows:

"Business Day" means any day other than a day on which banks in the State of New York are authorized or obligated to be closed.

"Closing" means the closing of the Merger.

"Closing Date" means the date on which the Closing actually takes place.

"Commercially Reasonable Efforts" means with respect to the disposition of the Legacy Assets, carrying out those obligations and tasks in a good faith and diligent manner, including the fact that, following the Merger, the Legacy Assets are not part of Homology's go-forward business plan, taking into account all commercial and other relevant factors that Homology, exercising good faith, would normally take into account with a disposition of non-core assets, *provided* that, notwithstanding the foregoing, such level of efforts and resources shall not require Homology to (i) hire or retain any business development personnel or third-party financial advisors specifically for the purpose of the Legacy Asset Disposition, or (ii) initiate any bona fide sale process or other pro-active efforts to identify potential counterparties with respect to any Legacy Assets, and *provided, further*,

that such level of efforts and resources shall be determined without taking into account the CVR Payment payable in accordance with, and subject to, the terms hereof.

"CVR" means a contingent contractual right of Holders to receive CVR Payments under this Agreement.

"CVR Payment" means the CVR Proceeds for a given payment.

"CVR Period" means the period beginning immediately following the Effective Time and ending on the tenth anniversary of the Closing Date.

"CVR Proceeds" means, upon the consummation of any Legacy Asset Disposition following the Closing Date and prior to expiration of the Disposition Period or, if applicable, the fiscal quarter during the CVR Period in which the proceeds of any Legacy Asset Disposition are received, the amount of Gross Proceeds actually received by Homology or any of its Subsidiaries upon such consummation or during the applicable fiscal quarter, less Permitted Deductions with respect to such Gross Proceeds, in each case as calculated in accordance with GAAP consistently applied.

"Disposition Period" means the period beginning on the execution date of the Merger Agreement and ending on the 18 month anniversary of the Closing Date; *provided*, that, for any sale, transfer, license, assignment, or other divestiture, disposition or commercialization of any Oxford Assets, the Disposition Period means the period beginning on the execution date of the Merger Agreement and ending on the 24 month anniversary of the Closing Date solely with respect to such Oxford Assets.

"Effective Time" means the time at which the Merger shall become effective at the time of the filing of the Certificate of Merger and the acceptance by the Secretary of State of the State of Delaware, or at such later time as may be specified in such Certificate of Merger with the consent of Homology and the Company.

"Expense Reserve" means $[•][1].

"Gross Proceeds" means, without duplication, all cash consideration that is paid to, or is received by, Homology or any of its Subsidiaries during the CVR Period in consideration for a Legacy Asset Disposition.

"Holder" means, at the relevant time, a Person in whose name CVRs are registered in the CVR Register.

"Majority of Holders" means, at any time, the registered Holder or Holders of more than 50% of the total number of CVRs registered at such time, as set forth on the CVR Register.

"Legacy Assets" means the assets, rights and interests held by or on behalf of Homology or any of its Subsidiaries as of the execution date of the Merger Agreement relating to Homology's HMI-103 (Adult/Pediatric PKU), HMI-204 (MLD), Capsids and AAVHSC Platform, including any equity interests held directly or indirectly by Homology in Oxford Biomedica Solutions, LLC or its affiliates ("OXB Solutions") pursuant to that certain Equity Securities Purchase Agreement, dated as of January 28, 2022, by and between Homology and OXB Solutions, in which Homology owns twenty percent (20%) of the fully diluted equity interests in OXB Solutions and Homology is entitled to exercise a put option to sell or transfer Homology's equity interests in OXB Solutions set forth therein on March 10, 2025 (such interests, the "Oxford Assets"); provided that Legacy Assets shall not include any Abandoned Homology Legacy IP Rights (as defined in the Merger Agreement).

"Legacy Asset Disposition" means the sale, transfer, license, assignment or other divestiture, disposition or commercialization of any Legacy Assets (including any such sale or disposition of equity securities in any

[1] **Note to Draft**: In connection with execution of the CVR Agreement at Closing, to insert the dollar amount actually deducted from Net Cash to cover expenses related to maintenance and disposition of Legacy Assets during the Disposition Period, which amount shall not exceed $400,000 in the aggregate.

Subsidiary that was established by Homology during the Disposition Period solely to hold any right, title or interest in or to all or any Legacy Assets) in a transaction or series of transactions, in each case entered into during the Disposition Period.

"Officer's Certificate" means a certificate signed by the chief executive officer or the chief financial officer of Homology, in their respective official capacities.

"Permitted Deductions" means the following costs or expenses, without duplication:

(i) any applicable and non-recoverable value added, sales or similar Taxes imposed on the Gross Proceeds and payable in cash by Homology or any of its Subsidiaries and any income Taxes required to be paid in cash by Homology or any of its Subsidiaries, in each case, with respect to the taxable year in which such Gross Proceeds were received which Taxes would not have been required to be paid by Homology or its applicable Subsidiary but for its receipt of Gross Proceeds; *provided*, that, for purposes of calculating any income Taxes of Homology or any of its Subsidiaries for this purpose, (a) such income Taxes shall be computed after taking into account any net operating loss carryforwards or other Tax attributes (including Tax credits) of Homology or any of its Subsidiaries that are available to offset income or gain, after taking into account any limits of the usability of such attributes under applicable Law, including under Section 382 of the Code, as reasonably determined by a nationally recognized tax advisor, which Tax attributes were generated either (I) prior to the Closing Date or (II) after the Closing Date, in the case of this clause (II) if such Tax attributes relate to the Legacy Assets, and (b) for the avoidance of doubt, any item(s) of income or gain resulting or arising from such Gross Proceeds shall be treated as the first item(s) of income or gain, as applicable, in the applicable taxable year;

(ii) any documented out-of-pocket costs and expenses incurred or accrued by Homology or any of its Subsidiaries in respect of its performance of this Agreement following the Closing Date or in respect of its negotiation, execution, delivery or performance of any agreement in connection with the Legacy Assets (for clarity, including any Sale Agreement), including (i) any costs related to the prosecution, maintenance or enforcement by Homology or any of its Subsidiaries of intellectual property rights (but excluding any costs related to a breach of this Agreement by Homology, including costs incurred in litigation in respect of the same), (ii) any costs related to Liabilities of or relating to the Legacy Assets that remain with Homology following the consummation of any Legacy Asset Disposition or (iii) any documented out-of-pocket fees of the Rights Agent in connection with this Agreement;

(iii) any documented out-of-pocket costs incurred or accrued by Homology or any of its Subsidiaries in connection with the negotiation, entry into and closing of any Legacy Asset Disposition, including any brokerage fee, finder's fee, opinion fee, success fee, transaction fee, service fee, regulatory and other filing fees, or other fee, commission or expense owed to any broker, finder, investment bank, auditor, accountant, counsel, advisor or other third party in relation thereto;

(iv) any Losses incurred and paid or payable by Homology or any of its Subsidiaries arising out of any third party claims, demands, actions or other proceedings relating to or in connection with any Legacy Assets or any Legacy Asset Disposition, including in respect of its performance of this Agreement, any Sale Agreement or any other agreement relating to any Legacy Asset Disposition and, notwithstanding anything in this Agreement to the contrary, the maximum amount that could be payable under any obligations of Homology or any of its Subsidiaries (including contingent or indemnification obligations provided for, arising out of or in connection with any Sale Agreement or any other agreement relating to any Legacy Asset Disposition); provided that any amounts deducted in respect of contingent or indemnification obligations shall be held back by Homology in a separate account for the benefit of the Holders and to the extent such amounts have not been used to pay such contingent or indemnification obligations upon the lapse in survival of the such contingent or indemnification obligations (or, if applicable, until any dispute related to such provisions is finally resolved if such resolution occurs subsequent to such lapse) prior to the end of the CVR Period, shall be paid over to the Rights Agent within five (5) Business days of such lapse; and

(v) any liabilities borne by Homology or any of its Subsidiaries pursuant to contracts related to the Legacy Assets, including costs arising from the termination thereof (in each case only to the extent not included in the calculation of Homology Net Cash (as defined in the Merger Agreement)).

"Permitted Transfer" means a Transfer of one or more CVRs (i) upon death of a Holder by will or intestacy; (ii) by instrument to an *inter vivos* or testamentary trust in which the CVRs are to be passed to beneficiaries upon the death of the trustee; (iii) made pursuant to a court order of a court of competent jurisdiction (such as in connection with divorce, bankruptcy or liquidation); (iv) made by operation of law (including a consolidation or merger) or without consideration in connection with the dissolution, liquidation or termination of any corporation, limited liability company, partnership or other entity; (v) in the case of CVRs payable to a nominee, from a nominee to a beneficial owner (and, if applicable, through an intermediary) or from such nominee to another nominee for the same beneficial owner, in each case as permitted by The Depository Trust Company; (vi) to Homology or its Subsidiaries; or (vii) as provided in Section 2.6.

"Person" means any individual, partnership, joint venture, limited liability company, firm, corporation, unincorporated association or organization, trust or other entity, and shall include any successor (by merger or otherwise) of any such Person.

"Record Date" means the close of business on the last Business Day prior to the day on which the Effective Time occurs.

"Rights Agent" means the Rights Agent named in the first paragraph of this Agreement, until a successor Rights Agent shall have been appointed pursuant to Article 3 of this Agreement, and thereafter "Rights Agent" will mean such successor Rights Agent.

"Transfer" means transfer, pledge, hypothecation, encumbrance, assignment or other disposition (whether by sale, merger, consolidation, liquidation, dissolution, dividend, distribution or otherwise), the offer to make such a transfer or other disposition, and each contract, arrangement or understanding, whether or not in writing, to effect any of the foregoing.

ARTICLE 2
CONTINGENT VALUE RIGHTS

Section 2.1 *Holders of CVRs; Appointment of Rights Agent*.

(a) The CVRs shall be issued to the holders of shares of Homology Common Stock as of the Record Date.

(b) Homology hereby appoints the Rights Agent to act as rights agent for Homology in accordance with the express terms and conditions set forth in this Agreement, and the Rights Agent hereby accepts such appointment.

Section 2.2 *Non-transferable*.

A Holder may not at any time Transfer CVRs, other than pursuant to a Permitted Transfer. Any attempted Transfer that is not a Permitted Transfer, in whole or in part, will be void *ab initio* and of no effect. The CVRs will not be listed on any quotation system or traded on any securities exchange.

Section 2.3 *No Certificate; Registration; Registration of Transfer; Change of Address*.

(a) Holders' rights and obligations in respect of CVRs derive solely from this Agreement; CVRs will not be evidenced by a certificate or other instrument.

(b) The Rights Agent will maintain an up-to-date register (the "CVR Register") for the purposes of (i) identifying the Holders of CVRs, (ii) determining Holders' entitlement to CVRs and (iii) registering the

CVRs and Permitted Transfers thereof. The CVR Register will initially show one position for The Depository Trust Company (or its nominee) representing all of the CVRs provided to the holders of shares of Homology Common Stock held as of the Record Date. Except as expressly provided herein with respect to the rights of the Rights Agent, neither Homology nor its Subsidiaries will have any responsibility or liability whatsoever to any person other than the Holders.

(c) Subject to the restriction on transferability set forth in Section 2.2, every request made to Transfer CVRs must be in writing and accompanied by a written instrument of Transfer reasonably acceptable to the Rights Agent, together with the signature guarantee of a guarantor institution which is a participant in a signature guarantee program approved by the Securities Transfer Association (a "signature guarantee") and other requested documentation in a form reasonably satisfactory to the Rights Agent, duly executed and properly completed, as applicable, by the Holder or Holders thereof, or by the duly appointed legal representative, personal representative or survivor of such Holder or Holders, setting forth in reasonable detail the circumstances relating to the Transfer. Upon receipt of such written notice, the Rights Agent will, subject to its reasonable determination in accordance with its own internal procedures that the Transfer instrument is in proper form and the Transfer is a Permitted Transfer and otherwise complies on its face with the other terms and conditions of this Agreement, register the Transfer of the applicable CVRs in the CVR Register. All Transfers of CVRs registered in the CVR Register will be the valid obligations of Homology, evidencing the same right, and entitling the transferee to the same benefits and rights under this Agreement, as those held by the transferor. Each of Homology and the Rights Agent may require payment (without duplication) of a sum sufficient to cover any stamp or other transfer Tax or governmental charge that is imposed in connection with (and would not have been imposed but for) any such registration of transfer, unless the transferee shall have established to the reasonable satisfaction of Homology or the Rights Agent, as applicable, that such Tax, if any, has been paid. No transfer of CVRs shall be valid until registered in the CVR Register and any transfer not duly registered in the CVR Register shall be void. Homology shall not be responsible for any costs and expenses related to any transfer or assignment of the CVRs (including the cost of any transfer tax).

(d) A Holder may make a written request to the Rights Agent to change such Holder's address of record in the CVR Register. Such written request must be duly executed by such Holder. Upon receipt of such written notice, the Rights Agent shall promptly record the change of address in the CVR Register.

Section 2.4 *Payment Procedures*.

(a) As promptly as practicable (and, in any event, within twenty (20) days) after the consummation of any Legacy Asset Dispositions and, in any event, not later than the date that is forty-five (45) days following the end of each fiscal quarter of Homology following the Closing in which CVR Proceeds are actually received by Homology or any of its Subsidiaries, Homology shall (i) deliver to the Rights Agent, an Officer's Certificate certifying the aggregate amount of (A) the CVR Proceeds (if any) actually received by Homology or its Subsidiaries during such fiscal quarter (or, in the case of the first delivery of such an Officer's Certificate hereunder, all CVR Proceeds actually received through the end of such fiscal quarter); (B) the Permitted Deductions reflected in such CVR Proceeds; and (C) the CVR Payment payable to Holders, if any, in respect of such CVR Proceeds, and (ii) deliver to the Rights Agent, or as the Rights Agent directs, the CVR Payment (if any) by wire transfer of immediately available funds to an account designated in writing by the Rights Agent. Upon receipt of the wire transfer referred to in the foregoing sentence, the Rights Agent shall promptly (and in any event, within ten (10) Business Days) pay, by check mailed, first-class postage prepaid, to the address of each Holder set forth in the CVR Register at such time or by other method of delivery as specified by the applicable Holder in writing to the Rights Agent, an amount equal to the product determined by multiplying (i) the quotient determined by dividing (A) the applicable CVR Payment by (B) the total number of CVRs registered in the CVR Register at such time, by (ii) the number of CVRs registered to such Holder in the CVR Register at such time. For the avoidance of doubt Homology shall have no further liability in respect of the relevant CVR Payment upon delivery of such CVR Payment in accordance with this Section 2.4(a) and the satisfaction of each of Homology's obligations set forth in this Section 2.4(a).

(b) Except to the extent otherwise required pursuant to a change in applicable Law after the date hereof, the parties hereto agree to treat the issuance of the CVRs as not constituting a current distribution and all CVR Payments for U.S. federal (and applicable state and local) income Tax purposes as distributions of money governed by Section 301 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), which will constitute a dividend to the extent payable out of Homology and its Subsidiaries' current and accumulated "earnings and profits" (pursuant to Section 316 of the Code) in the taxable year in which any such CVR Payment is made. The parties hereto will not take any position to the contrary on any Tax Return or for other Tax purposes except as required by a change in applicable Law after the date hereof.

(c) Homology and the Rights Agent will be entitled to deduct and withhold, or cause to be deducted and withheld, from any CVR Payment otherwise payable pursuant to this Agreement, such amounts as it is required to deduct and withhold with respect to the making of such payment under any provision of applicable Law relating to Taxes. To the extent that amounts are so deducted and withheld and paid over to the appropriate Governmental Authority, such deducted and withheld amounts will be treated for all purposes of this Agreement as having been paid to the Holder in respect of which such deduction and withholding was made. Prior to making any such deductions or withholdings or causing any such deductions or withholdings to be made with respect to any Holder, the Rights Agent will, to the extent reasonably practicable, provide notice to the Holder of such potential Tax deduction or withholding and a reasonable opportunity for the Holder to provide any necessary Tax forms in order to avoid or reduce such withholding amounts; *provided* that the time period for payment of a CVR Payment by the Rights Agent set forth in Section 2.4(a) will be extended by a period equal to any delay caused by the Holder providing such forms; *provided*, *further*, that in no event shall such period be extended for more than ten (10) Business Days, unless otherwise requested by the Holder for the purpose of delivering such forms and agreed to by the Rights Agent.

(d) Any portion of a CVR Payment that remains undistributed to the Holders six (6) months after the applicable fiscal quarter end (including by means of uncashed checks or invalid addresses on the CVR Register) will be delivered by the Rights Agent to Homology or a person nominated in writing by Homology (with written notice thereof from Homology to the Rights Agent), and any Holder will thereafter look only to Homology for payment of such CVR Payment (which shall be without interest).

(e) Neither Homology nor the Rights Agent will be liable to any Person in respect of any CVR Payment amount delivered to a public official pursuant to any applicable abandoned property, escheat or similar legal requirement under applicable law. In addition to and not in limitation of any other indemnity obligation herein, Homology agrees to indemnify and hold harmless the Rights Agent with respect to any liability, penalty, cost or expense the Rights Agent may incur or be subject to in connection with transferring such property to Homology or a public official.

Section 2.5 *No Voting, Dividends or Interest; No Equity or Ownership Interest*.

(a) CVRs will not have any voting or dividend rights, and interest will not accrue on any amounts payable in respect of CVRs.

(b) CVRs will not represent any equity or ownership interest in Homology or any of its Subsidiaries or in the Surviving Corporation. The sole right of the Holders to receive property hereunder is the right to receive CVR Payments, if any, in accordance with the terms hereof. It is hereby acknowledged and agreed that a CVR shall not constitute a security of Homology or any of its Subsidiaries or of the Surviving Corporation.

(c) It is hereby acknowledged and agreed that the CVRs and the possibility of any payment hereunder with respect thereto are highly speculative and subject to numerous factors outside of Homology's control, and there is no assurance that Holders will receive any payments under this Agreement or in connection with the CVRs. Each Holder acknowledges that it is highly possible that there will not be any Gross Proceeds that may be the subject of a CVR Payment Amount. It is further acknowledged and agreed that neither Homology nor its Subsidiaries owe, by virtue of their obligations under this Agreement, a fiduciary duty or any implied duties to the Holders and the parties hereto intend solely the express provisions of this

Agreement to govern their contractual relationship with respect to the CVRs. It is acknowledged and agreed that this Section 2.5(c) is an essential and material term of this Agreement.

Section 2.6 *Ability to Abandon CVR*.

A Holder may at any time, at such Holder's option, abandon all of such Holder's remaining rights represented by CVRs by transferring such CVR to Homology or a person nominated in writing by Homology (with written notice thereof from Homology to the Rights Agent) without consideration or compensation therefor, and such rights will be cancelled, with the Rights Agent being promptly notified in writing by Homology of such transfer and cancellation. Nothing in this Agreement is intended to prohibit Homology or its Subsidiaries from offering to acquire or acquiring CVRs, in private transactions or otherwise, for consideration in its sole discretion.

ARTICLE 3
THE RIGHTS AGENT

Section 3.1 *Certain Duties and Responsibilities*.

(a) The Rights Agent will not have any liability for any actions taken or not taken in connection with this Agreement, except to the extent such liability arises as a result of the willful misconduct, bad faith or gross negligence of the Rights Agent (in each case as determined by a final non-appealable judgment of court of competent jurisdiction). Notwithstanding anything in this Agreement to the contrary, any liability of the Rights Agent under this Agreement will be limited to the amount of annual fees paid by Homology to the Rights Agent during the twelve (12) months immediately preceding the event for which recovery from the Rights Agent is being sought, except in the case of the willful misconduct, bad faith or fraud of the Rights Agent (in each case as determined by a final non-appealable judgment of court of competent jurisdiction). Anything to the contrary notwithstanding, in no event will the Rights Agent be liable for special, punitive, indirect, incidental or consequential loss or damages of any kind whatsoever (including, without limitation, lost profits), even if the Rights Agent has been advised of the likelihood of such loss or damages, and regardless of the form of action.

(b) The Rights Agent shall not have any duty or responsibility in the case of the receipt of any written demand from any Holder with respect to any action or default by any person or entity, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law or otherwise or to make any demand upon Homology or the Company.

Section 3.2 *Certain Rights of Rights Agent*.

(a) The Rights Agent undertakes to perform such duties and only such duties as are specifically set forth in this Agreement, and no implied covenants or obligations will be read into this Agreement against the Rights Agent.

(b) The Rights Agent may rely and will be protected by Homology in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order or other paper or document reasonably believed by it in the absence of bad faith to be genuine and to have been signed or presented by or on behalf of Homology.

(c) The Rights Agent may engage and consult with counsel of its selection, and the advice or opinion of such counsel will, in the absence of bad faith, gross negligence or willful misconduct (in each case, as determined by a final, non-appealable judgment of a court of competent jurisdiction) on the part of the Rights Agent, be full and complete authorization and protection in respect of any action taken or not taken by the Rights Agent in reliance thereon.

(d) Any permissive rights of the Rights Agent hereunder will not be construed as a duty.

(e) The Rights Agent will not be required to give any note or surety in respect of the execution of its powers or otherwise under this Agreement.

(f) Homology agrees to indemnify the Rights Agent for, and to hold the Rights Agent harmless from and against, any loss, liability, damage, judgment, fine, penalty, cost or expense (each, a "Loss") suffered or incurred by the Rights Agent and arising out of or in connection with the Rights Agent's performance of its obligations under this Agreement, including the reasonable and documented costs and expenses of defending the Rights Agent against any claims, charges, demands, actions or suits arising out of or in connection in connection with the execution, acceptance, administration, exercise and performance of its duties under this Agreement, including the costs and expenses of defending against any claim of liability arising therefrom, directly or indirectly, or enforcing its rights hereunder, except to the extent such Loss has been determined by a final non-appealable decision of a court of competent jurisdiction to have resulted from the Rights Agent's gross negligence, bad faith or willful misconduct (in each case, as determined by a final, non-appealable judgment of a court of competent jurisdiction).

(g) In addition to the indemnification provided under Section 3.2(e), Homology agrees (i) to pay the fees of the Rights Agent in connection with the Rights Agent's performance of its obligations hereunder, as agreed upon in writing by the Rights Agent and Homology on or prior to the date of this Agreement, and (ii) to reimburse the Rights Agent for all reasonable and documented out-of-pocket expenses and other disbursements incurred in the preparation, delivery, negotiation, amendment, administration and execution of this Agreement and the exercise and performance of its duties hereunder, including all taxes (other than income, receipt, franchise or similar taxes) and governmental charges, incurred by the Rights Agent in the performance of its obligations under this Agreement, except that Homology will have no obligation to pay the fees of the Rights Agent or reimburse the Rights Agent for the fees of counsel in connection with any lawsuit initiated by the Rights Agent on behalf of itself or the Holders, except in the case of any suit enforcing the provisions of Section 2.4(a), Section 2.4(b) or Section 3.2(e), if Homology is found by a court of competent jurisdiction to be liable to the Rights Agent or the Holders, as applicable in such suit.

(h) No provision of this Agreement shall require the Rights Agent to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder or in the exercise of any of its rights or powers if it believes that repayment of such funds or adequate indemnification against such risk or liability is not reasonably assured to it.

(i) The Rights Agent will not be deemed to have knowledge of any event of which it was supposed to receive notice hereunder but has not received written notice of such event, and the Rights Agent will not incur any liability for failing to take action in connection therewith, in each case, unless and until it has received such notice in writing.

(j) The Rights Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorney or agents and the Rights Agent shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agents or for any loss to Homology or the Company resulting from any such act, default, neglect or misconduct, absent gross negligence, bad faith or willful misconduct (each as determined by a final non-appealable judgment of a court of competent jurisdiction) in the selection and continued employment thereof.

(k) Homology shall perform, acknowledge and deliver or cause to be performed, acknowledged and delivered all such further and other acts, documents, instruments and assurances as may be reasonably required by the Rights Agent for the carrying out or performing by the Rights Agent of the provisions of this Agreement.

(l) The Rights Agent shall not be liable for or by reason of any of the statements of fact or recitals contained in this Agreement (except its countersignature thereof) or be required to verify the same, and all such statements and recitals are and shall be deemed to have been made by Homology only.

(m) The Rights Agent shall act hereunder solely as agent for Homology and shall not assume any obligations or relationship of agency or trust with any of the owners or holders of the CVRs. The Rights Agent shall not have any duty or responsibility in the case of the receipt of any written demand from any Holders with

respect to any action or default by Homology, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law or otherwise or to make any demand upon Homology.

(n) The Rights Agent may rely on and be fully authorized and protected in acting or failing to act upon (i) any guaranty of signature by an "eligible guarantor institution" that is a member or participant in the Securities Transfer Agents Medallion Program or other comparable "signature guarantee program" or insurance program in addition to, or in substitution for, the foregoing; or (ii) any law, act, regulation or any interpretation of the same even though such law, act, or regulation may thereafter have been altered, changed, amended or repealed.

(o) The Rights Agent shall not be liable or responsible for any failure of Homology to comply with any of its obligations relating to any registration statement filed with the Securities and Exchange Commission or this Agreement, including without limitation obligations under applicable Law.

(p) Whenever the Rights Agent deems it desirable that a matter be proved or established prior to taking or omitting any action hereunder, the Rights Agent may (i) rely upon an Officer's Certificate and (ii) incur no liability and be held harmless by the Company for or in respect of any action taken or omitted to be taken by it under the provisions of this Agreement in reliance upon such Officer's Certificate.

(q) All funds received by EQ under this Agreement that are to be distributed or applied by EQ in the performance of services hereunder (the "Funds") shall be held by EQ as agent for Homology and deposited in one or more bank accounts to be maintained by EQ in its name as agent for Homology. Until paid pursuant to the terms of this Agreement, EQ will hold the Funds through such accounts in: deposit accounts of commercial banks with Tier 1 capital exceeding $1 billion or with an average rating above investment grade by S&P (LT Local Issuer Credit Rating), Moody's (Long Term Rating) and Fitch Ratings, Inc. (LT Issuer Default Rating) (each as reported by Bloomberg Finance L.P.). EQ shall have no responsibility or liability for any diminution of the Funds that may result from any deposit made by EQ in accordance with this paragraph, including any losses resulting from a default by any bank, financial institution or other third party. EQ may from time to time receive interest, dividends or other earnings in connection with such deposits. EQ shall not be obligated to pay such interest, dividends or earnings to Homology, any holder or any other party.

(r) The obligations of Homology and the rights of the Rights Agent under this Section 3.2, Section 3.1 and Section 2.4 shall survive the expiration of the CVRs and the termination of this Agreement and the resignation, replacement or removal of the Rights Agent.

Section 3.3 *Resignation and Removal; Appointment of Successor*.

(a) The Rights Agent may resign at any time by written notice to Homology. Any such resignation notice shall specify the date on which such resignation will take effect (which shall be at least thirty (30) days following the date that such resignation notice is delivered), and such resignation will be effective on the earlier of (i) the date so specified and (ii) the appointment of a successor Rights Agent.

(b) Homology will have the right to remove the Rights Agent at any time by written notice to the Rights Agent, specifying the date on which such removal will take effect. Such notice will be given at least thirty (30) days prior to the date so specified (or, if earlier, the appointment of the successor Rights Agent).

(c) If the Rights Agent resigns, is removed or becomes incapable of acting, Homology will promptly appoint a qualified successor Rights Agent. Notwithstanding the foregoing, if Homology fails to make such appointment within a period of thirty (30) days after giving notice of such removal or after it has been notified in writing of such resignation or incapacity by the resigning or incapacitated Rights Agent, then the incumbent Rights Agent may apply to any court of competent jurisdiction for the appointment of a new Rights Agent. The successor Rights Agent so appointed will, upon its acceptance of such appointment in accordance with this Section 3.3(c) and Section 3.4, become the Rights Agent for all purposes hereunder.

(d) Homology will give notice to the Holders of each resignation or removal of the Rights Agent and each appointment of a successor Rights Agent in accordance with Section 7.2. Each notice will include the name and address of the successor Rights Agent. If Homology fails to send such notice within ten (10) Business Days after acceptance of appointment by a successor Rights Agent, the successor Rights Agent will cause the notice to be mailed at the expense of Homology.

(e) Notwithstanding anything to the contrary in this Section 3.3, unless consented to in writing by the Majority of Holders, Homology will not appoint as a successor Rights Agent any Person that is not a stock transfer agent of national reputation or the corporate trust department of a commercial bank.

(f) The Rights Agent will reasonably cooperate with Homology and any successor Rights Agent in connection with the transition of the duties and responsibilities of the Rights Agent to the successor Rights Agent, including the transfer of all relevant data, including the CVR Register, to the successor Rights Agent, but such predecessor Rights Agent shall not be required to make any additional expenditure or assume any additional liability in connection with the foregoing.

Section 3.4 *Acceptance of Appointment by Successor*.

Every successor Rights Agent appointed hereunder will, at or prior to such appointment, execute, acknowledge and deliver to Homology and to the resigning or removed Rights Agent an instrument accepting such appointment and a counterpart of this Agreement, and such successor Rights Agent, without any further act, deed or conveyance, will become vested with all the rights, powers, trusts and duties of the Rights Agent; *provided* that upon the request of Homology or the successor Rights Agent, such resigning or removed Rights Agent will execute and deliver an instrument transferring to such successor Rights Agent all the rights, powers and trusts of such resigning or removed Rights Agent.

ARTICLE 4
COVENANTS

Section 4.1 *List of Holders*.

Homology will furnish or cause to be furnished to the Rights Agent, in such form as Homology receives from Homology's transfer agent (or other agent performing similar services for Homology), the names and addresses of the Holders within fifteen (15) Business Days following the Closing Date.

Section 4.2 *CVR Committee; Efforts*.

(a) The Homology Board has delegated, to a special committee of the Homology Board (the "Special Committee") comprised of four (4) directors of the Homology Board (the "Initial Special Committee Members"), the primary responsibility, authority and discretion during the Disposition Period with respect to (i) managing the Legacy Assets, (ii) negotiating any Legacy Asset Disposition during the Disposition Period; provided that the Special Committee may not cause the Company to incur costs, expenses or obligations in excess of the Expense Reserve without the prior consent of the Homology Board. The Special Committee shall also be empowered with the authority to authorize and direct any officer of Homology to negotiate, execute and deliver a definitive written agreement with respect to a Legacy Asset Disposition in a form approved by the Special Committee and consistent with this Agreement and the Merger Agreement (a "Sale Agreement") in the name and on behalf of Homology; *provided*, *however*, that no Sale Agreement shall be entered into without the prior review and approval of the Homology Board (such approval not to be unreasonably withheld, conditioned or delayed). In the event (A) any Initial Special Committee Member no longer serves on the Special Committee during the Disposition Period, such vacancy on the Special Committee shall be filled with another director of the Homology Board, and (B) any Initial Special Committee Member who was designated by Homology no longer serves on the Special Committee during

the Disposition Period, such vacancy on the Special Committee shall be filled with a then-existing member of the Homology Board selected by the member of the post-Closing Homology Board designated by Homology. In each case of (A)-(B) above, the post-Closing Homology Board agrees to install the applicable replacement on the Special Committee.

(b) The delegation of responsibility and authority to the Special Committee set forth in Section 4.2(a) shall not be revoked or modified at any time during the Disposition Period; *provided*, that the Special Committee shall automatically dissolve upon expiration of the Disposition Period and shall have no further responsibility or authority thereafter. The Special Committee and Homology Board shall not have any liability to the Holders for any actions taken or not taken in accordance with this Agreement in respect of the matters expressly contemplated hereby. No provision of this Agreement shall require the Special Committee or any members thereof to expend or risk its, his or her own funds or otherwise incur any financial liability in the performance of any duties hereunder or in the exercise of any rights or powers hereunder.

(c) The Holders shall be intended third-party beneficiaries of the provisions of this Agreement; *provided*, that under no circumstances shall the rights of Holders as third-party beneficiaries pursuant to this Article 4 be enforceable by such Holders or any other Person acting for or on their behalf other than the Special Committee (or the Homology Board if the Special Committee no longer exists). The Special Committee (or the Homology Board if the Special Committee no longer exists) has the sole power and authority to act on behalf of the Holders in enforcing any of their rights hereunder.

(d) During the six (6) months immediately following the Closing, Homology will, and will cause its Subsidiaries to, use Commercially Reasonable Efforts to effect Legacy Asset Dispositions with respect to the then-existing Legacy Assets (i) pursuant to a letter of intent for such Legacy Asset Disposition that was executed prior to the Closing Date, and (ii) to a third party that has delivered a bona fide indication of interest to Homology subsequent to the Closing Date, *provided* that such obligation will not apply to the Oxford Assets. Homology shall use Commercially Reasonable Efforts to exercise the put option on the Oxford Assets contemplated in Section 9.4 of the Limited Liability Company Agreement dated as of March 10, 2022 of OXB Solutions promptly after such put option becomes exercisable on March 10, 2025. During the Disposition Period, if and to the extent the Special Committee recommends, and the Homology Board authorizes and directs, the execution and delivery of any Sale Agreement, Homology will, and will cause its Subsidiaries to, use commercially reasonable efforts to (i) execute and deliver the Sale Agreement, and (ii) effectuate the Legacy Asset Disposition pursuant to such Sale Agreement in accordance with its terms. Notwithstanding anything in this Agreement to the contrary, unless approved by the Special Committee, Homology shall have no obligation whatsoever to enter into any Sale Agreement or other agreement in connection with a Legacy Asset Disposition that imposes on Homology or requires Homology to retain or assume, any material obligations or liabilities, monetary or otherwise, following the consummation of such transaction.

(e) Except as expressly set forth in Article 3, Section 4.2(a), Section 4.2(b) or Section 4.2(d), none of Homology or any of its Subsidiaries shall have any obligation or liability whatsoever to any Person relating to or in connection with any action, or failure to act, with respect to any Legacy Asset Disposition.

(f) Subject to the foregoing clause (d) and the other contractual obligations of Homology expressly set forth in this Agreement, (i) the Holders acknowledge that Homology has a fiduciary obligation to operate its business in the best interests of its stockholders, and any potential obligation to pay CVR Proceeds will not create any express or implied obligation to operate its business in any particular manner in order to maximize such CVR Proceeds, (ii) except as expressly set forth in this Agreement, the Holders are not relying on any representation of Homology or any other Person with regard to any Legacy Asset Disposition or other action involving the Legacy Assets following the Closing, and neither Homology nor any other Person has provided, or can provide, any assurance to the Holders that any CVR Proceeds will in fact be earned and paid, and (iii) none of Homology or any of its Subsidiaries, officers or directors shall have any obligation or liability whatsoever to any Person relating to or in connection with any action, or failure to act, with respect to any Legacy Asset Disposition.

(g) Following the Disposition Period, Homology shall be permitted to take any action in respect of the Legacy Assets in order to satisfy any Liabilities of or arising from the Legacy Assets, including any wind-down or termination Liabilities. For clarity, following the CVR Period and following the Disposition Period without a Legacy Asset Disposition, Homology may take any action in respect of the Legacy Assets in its sole and absolute discretion.

Section 4.3 *Prohibited Actions*.

Unless approved by the Special Committee (or the Homology Board if the Special Committee no longer exists), Homology shall not grant any lien, security interest, pledge or similar interest in any Legacy Assets (other than liens or security interests generally granted with respect to all assets of Homology, and not specific to the Legacy Assets, and which do not prohibit the ability of Homology to complete a Legacy Asset Disposition and, in connection therewith, to deliver title to the Legacy Assets to the purchaser thereof, free and clear of such liens and security interests) or any CVR Proceeds.

ARTICLE 5
AMENDMENTS

Section 5.1 *Amendments Without Consent of Holders or Rights Agent*.

(a) Homology, at any time and from time to time, may (without the consent of any Person, other than the Rights Agent, which such consent not to be unreasonably withheld, conditioned, or delayed) enter into one or more amendments to this Agreement for any of the following purposes, without the consent of any of the Holders or the Rights Agent:

(i) to evidence the appointment of another Person as a successor Rights Agent and the assumption by any successor Rights Agent of the covenants and obligations of the Rights Agent herein in accordance with the provisions hereof;

(ii) subject to Section 6.1, to evidence the succession of another person to Homology and the assumption of any such successor of the covenants of Homology outlined herein in a transaction contemplated by Section 6.1;

(iii) to add to the covenants of Homology such further covenants, restrictions, conditions or provisions for the protection and benefit of the Holders; *provided* that in each case, such provisions shall not adversely affect the interests of the Holders;

(iv) to cure any ambiguity, to correct or supplement any provision in this Agreement that may be defective or inconsistent with any other provision in this Agreement, or to make any other provisions with respect to matters or questions arising under this Agreement; *provided* that in each case, such provisions shall not adversely affect the interests of the Holders;

(v) as may be necessary or appropriate to ensure that CVRs are not subject to registration under the U.S. Securities Act of 1933, as amended, or the U.S. Securities Exchange Act of 1934, as amended and the rules and regulations made thereunder, or any applicable state securities or “blue sky” laws;

(vi) as may be necessary or appropriate to ensure that Homology is not required to produce a prospectus or an admission document in order to comply with applicable Law;

(vii) to cancel CVRs (i) in the event that any Holder has abandoned its rights in accordance with Section 2.6, or (ii) following a transfer of such CVRs to Homology or its Subsidiaries in accordance with Section 2.2 or Section 2.3;

(viii) as may be necessary or appropriate to ensure that Homology complies with applicable Law; or

(ix) to effect any other amendment to this Agreement that would provide any additional rights or benefits to the Holders or that does not adversely affect the legal rights under this Agreement of any such Holder.

(b) Promptly after the execution by Homology of any amendment pursuant to this Section 5.1, Homology will (or will cause the Rights Agent to) notify the Holders in general terms of the substance of such amendment in accordance with Section 7.2.

Section 5.2 *Amendments with Consent of Holders*.

(a) In addition to any amendments to this Agreement that may be made by Homology without the consent of any Holder or the Rights Agent pursuant to Section 5.1, with the consent of the Majority of Holders, Homology and the Rights Agent may enter into one or more amendments to this Agreement for the purpose of adding, eliminating or amending any provisions of this Agreement, even if such addition, elimination or amendment is adverse to the interests of the Holders.

(b) Promptly after the execution by Homology and the Rights Agent of any amendment pursuant to the provisions of this Section 5.2, Homology will (or will cause the Rights Agent to) notify the Holders in general terms of the substance of such amendment in accordance with Section 7.2.

Section 5.3 *Effect of Amendments*.

Upon the execution of any amendment under this Article 5, this Agreement will be modified in accordance therewith, such amendment will form a part of this Agreement for all purposes and every Holder will be bound thereby. Upon the delivery of a certificate from an appropriate officer of Homology which states that the proposed supplement or amendment is in compliance with the terms of this Article 5, the Rights Agent shall execute such supplement or amendment. Notwithstanding anything in this Agreement to the contrary, the Rights Agent shall not be required to execute any supplement or amendment to this Agreement that it has determined would adversely affect its own rights, duties, obligations or immunities under this Agreement. No supplement or amendment to this Agreement shall be effective unless duly executed by the Rights Agent.

ARTICLE 6
CONSOLIDATION, MERGER, SALE OR CONVEYANCE

Section 6.1 *Homology May Not Consolidate, Etc.*

During the CVR Period, Homology shall not consolidate with or merge into any other Person or convey, transfer or lease all or substantially all of its properties and assets to any Person, unless:

(a) the Person formed by such consolidation or into which Homology is merged or the Person that acquires by conveyance or transfer, or that leases, all or substantially all of the properties and assets of Homology (the "Surviving Person") shall expressly assume Homology's obligations under this Agreement, including payment of amounts on all CVRs in accordance with the applicable terms; and

(b) Homology has delivered to the Rights Agent an Officer's Certificate, stating that such consolidation, merger, conveyance, transfer or lease complies with this Article 6.

Section 6.2 *Successor Substituted*.

Upon any consolidation of or merger by Homology with or into any other Person, or any conveyance, transfer or lease of the properties and assets substantially as an entirety to any Person in accordance with Section 6.1, the Surviving Person shall succeed to, and be substituted for, and may exercise every right and power of, and shall assume all of the obligations of Homology under this Agreement with the same effect as if the Surviving Person had been named as Homology herein.

ARTICLE 7
MISCELLANEOUS

Section 7.1 *Notices to Rights Agent and to Homology*.

All notices, requests and other communications (each, a "Notice") to any party hereunder shall be in writing. Such Notice shall be deemed given (a) on the date of delivery, if delivered in person, by Fedex or other internationally recognized overnight courier service or, (except with respect to any Person other than the Rights Agent), by e-mail (upon confirmation of receipt) prior to 5:00 p.m. in the time zone of the receiving party or on the next Business Day, if delivered after 5:00 p.m. in the time zone of the receiving party or (b) on the first Business Day following the date of dispatch, if delivered by FedEx or by other internationally recognized overnight courier service (upon proof of delivery), addressed as follows:

if to the Rights Agent, to:

Equiniti Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219

if to Homology, to:

Homology Medicines, Inc.
One Patriots Park
Bedford, MA 01730
Attention: Jodie Morrison
Email: [***]

with a copy, which shall not constitute notice, to:

Goodwin Procter LLP
100 Northern Avenue
Boston, Massachusetts 02210
Attention: John T. Haggerty; Jacqueline Mercier; Tevia K. Pollard
Email: [***]

or to such other address or facsimile number as such party may hereafter specify for the purpose by notice to the other parties hereto.

Section 7.2 *Notice to Holders*.

All Notices required to be given to the Holders will be given (unless otherwise herein expressly provided) in writing and mailed, first-class postage prepaid, to each Holder at such Holder's address as set forth in the CVR Register, not later than the latest date, and not earlier than the earliest date, prescribed for the sending of such Notice, if any, and will be deemed given on the date of mailing. In any case where notice to the Holders is given by mail, neither the failure to mail such Notice, nor any defect in any Notice so mailed, to any particular Holder will affect the sufficiency of such Notice with respect to other Holders.

Section 7.3 *Entire Agreement*.

As between Homology and the Rights Agent, this Agreement constitutes the entire agreement between the parties with respect to the subject matter of this Agreement, notwithstanding the reference to any other agreement herein, and supersedes all prior agreements and understandings, both written and oral, among or between any of the parties with respect to the subject matter of this Agreement.

Section 7.4 *Merger or Consolidation or Change of Name of Rights Agent*.

Any Person into which the Rights Agent or any successor Rights Agent may be merged or with which it may be consolidated, or Person resulting from any merger or consolidation to which the Rights Agent or any successor Rights Agent shall be a party, or any Person succeeding to the stock transfer or other shareholder services business of the Rights Agent or any successor Rights Agent, shall be the successor to the Rights Agent under this Agreement without the execution or filing of any paper or any further act on the part of any of the parties hereto, *provided* that such Person would be eligible for appointment as a successor Rights Agent under the provisions of Section 3.3. The purchase of all or substantially all of the Rights Agent's assets employed in the performance of transfer agent activities shall be deemed a merger or consolidation for purposes of this Section 7.4.

Section 7.5 *Successors and Assigns*.

This Agreement will be binding upon, and will be enforceable by and inure solely to the benefit of, the Holders, Homology and the Rights Agent and their respective successors and assigns. Except for assignments pursuant to Section 7.4, the Rights Agent may not assign this Agreement without Homology's prior written consent. Subject to Section 5.1(a)(ii) and Article 6 hereof, Homology may assign, in its sole discretion and without the consent of any other party, any or all of its rights, interests and obligations hereunder to one or more of its Affiliates or to any Person with whom Homology is merged or consolidated, or any entity resulting from any merger or consolidation to which Homology shall be a party (each, an "Assignee"); *provided*, *however*, that in connection with any assignment to an Assignee, Homology shall agree to remain liable for the performance by Homology of its obligations hereunder (to the extent Homology exists following such assignment). Homology or an Assignee may not otherwise assign this Agreement without the prior consent of the Majority of Holders. Any attempted assignment of this Agreement in violation of this Section 7.5 will be void *ab initio* and of no effect.

Section 7.6 *Benefits of Agreement; Action by Majority of Holders*.

Nothing in this Agreement, express or implied, will give to any Person (other than Homology, the Rights Agent, the Holders and their respective permitted successors and assigns hereunder) any benefit or any legal or equitable right, remedy or claim under this Agreement or under any covenant or provision herein contained, all such covenants and provisions being for the sole benefit of Homology, the Rights Agent, the Holders and their permitted successors and assigns. The Holders will have no rights hereunder except as are expressly set forth herein. Except for the rights of the Rights Agent set forth herein, the Majority of Holders will have the sole right, on behalf of all Holders, by virtue of or under any provision of this Agreement, to institute any action or proceeding at law or in equity with respect to this Agreement, and no individual Holder or other group of Holders will be entitled to exercise such rights.

Section 7.7 *Governing Law*.

This Agreement and the CVRs will be governed by, and construed in accordance with, the laws of the State of Delaware without regard to the conflicts of law rules of such state.

Section 7.8 *Jurisdiction*.

In any action or proceeding between any of the parties hereto arising out of or relating to this Agreement or any of the transactions contemplated hereby, each of the parties hereto: (a) irrevocably and unconditionally consents and submits to the exclusive jurisdiction and venue of the Chancery Court of the State of Delaware, County of New Castle, or, if under applicable Law exclusive jurisdiction is vested in the Federal courts, the United States District Court for the District of Delaware (and appellate courts thereof); (b) agrees that all claims in respect of such action or proceeding shall be heard and determined exclusively in accordance with clause (a) of this Section 7.8; (c) waives any objection to laying venue in any such action or proceeding in such courts;

(d) waives any objection that such courts are an inconvenient forum or do not have jurisdiction over any Party; and (e) agrees that service of process upon such Party in any such action or proceeding shall be effective if notice is given in accordance with Section 7.1 or Section 7.2 of this Agreement.

Section 7.9 ***WAIVER OF JURY TRIAL***.

EACH OF THE PARTIES HERETO (AND BY ACCEPTING THE CVR' S, THE HOLDERS) HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATED TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY. EACH PARTY CERTIFIES AND ACKNOWLEDGES THAT (I) NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PARTY HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PARTY WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER, (II) EACH PARTY UNDERSTANDS AND HAS CONSIDERED THE IMPLICATION OF THIS WAIVER, (III) EACH PARTY MAKES THIS WAIVER VOLUNTARILY, AND (IV) EACH PARTY HAS BEEN INDUCED TO ENTER INTO THIS AGREEMENT BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION 7.9.

Section 7.10 *Severability Clause*.

In the event that any provision of this Agreement, or the application of any such provision to any Person or set of circumstances, is for any reason determined to be invalid, unlawful, void or unenforceable to any extent, the remainder of this Agreement, and the application of such provision to Persons or circumstances other than those as to which it is determined to be invalid, unlawful, void or unenforceable, will not be impaired or otherwise affected and will continue to be valid and enforceable to the fullest extent permitted by applicable Law. Upon such a determination, the parties hereto will negotiate in good faith to modify this Agreement so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the fullest extent possible; *provided*, *however*, that if an excluded provision shall affect the rights, immunities, liabilities, duties or obligations of the Rights Agent, the Rights Agent shall be entitled to resign immediately upon written notice to Homology.

Section 7.11 *Counterparts; Effectiveness*.

This Agreement may be signed in any number of counterparts, each of which will be deemed an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. This Agreement or any counterpart may be executed and delivered by facsimile copies or delivered by electronic communications by portable document format (.pdf), each of which shall be deemed an original. This Agreement will become effective when each party hereto will have received a counterpart hereof signed by the other party hereto. Until and unless each party has received a counterpart hereof signed by the other party hereto, this Agreement will have no effect and no party will have any right or obligation hereunder (whether by virtue of any oral or written agreement or any other communication).

Section 7.12 *Termination*.

This Agreement will automatically terminate and be of no further force or effect and, except as provided in Section 3.2, the parties hereto will have no further liability hereunder, and the CVRs will expire without any consideration or compensation therefor, upon the expiration of the CVR Period. The termination of this Agreement will not affect or limit the right of Holders to receive the CVR Payments under Section 2.4 to the extent earned prior to the termination of this Agreement, and the provisions applicable thereto will survive the expiration or termination of this Agreement.

Section 7.13 *Force Majeure*.

Notwithstanding anything to the contrary contained herein, none of the Rights Agent, Homology or any of its Subsidiaries (except as it relates to the obligations of the Company under Article 3) will be liable for any delays or failures in performance resulting from acts beyond its reasonable control including acts of God, pandemics (including COVID-19), terrorist acts, shortage of supply, breakdowns or malfunctions, interruptions or malfunctions of computer facilities, or loss of data due to power failures or mechanical difficulties with information storage or retrieval systems, labor difficulties, war or civil unrest.

Section 7.14 *Construction*.

(a) For purposes of this Agreement, whenever the context requires: singular terms will include the plural, and vice versa; the masculine gender will include the feminine and neuter genders; the feminine gender will include the masculine and neuter genders; and the neuter gender will include the masculine and feminine genders.

(b) As used in this Agreement, the words "include" and "including," and variations thereof, will not be deemed to be terms of limitation, but rather will be deemed to be followed by the words "without limitation."

(c) The headings contained in this Agreement are for convenience of reference only, will not be deemed to be a part of this Agreement and will not be referred to in connection with the construction or interpretation of this Agreement.

(d) Any reference in this Agreement to a date or time shall be deemed to be such date or time in New York City, United States, unless otherwise specified. The parties hereto and Homology have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties and Homology and no presumption or burden of proof shall arise favoring or disfavoring any Person by virtue of the authorship of any provision of this Agreement.

(e) All references herein to "$" are to United States Dollars.

[*Remainder of page intentionally left blank*]

IN WITNESS WHEREOF, each of the parties has caused this Agreement to be executed as of the day and year first above written.

[__]

By: _____
Name:
Title:

EQUINITI TRUST COMPANY, LLC, as Rights Agent

By: _____
Name:
Title:

[Signature Page to CVR Agreement]

Annex E

Final Form

LOCK-UP AGREEMENT

November 16, 2023

Q32 Bio Inc.
830 Winter St.
Waltham, MA 02451

Ladies and Gentlemen:

The undersigned signatory of this lock-up agreement (this "***Lock-Up Agreement***") understands that Homology Medicines, Inc., a Delaware corporation ("***Homology***"), has entered into an Agreement and Plan of Merger, dated as of November 16, 2023 (as the same may be amended from time to time, the "***Merger Agreement***") with Kenobi Merger Sub, Inc., a Delaware corporation and a direct, wholly owned subsidiary of Homology, and Q32 Bio Inc., a Delaware corporation (the "***Company***"). Capitalized terms used but not otherwise defined herein shall have the respective meanings ascribed to such terms in the Merger Agreement.

As a condition and inducement to each of the parties to enter into the Merger Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned hereby irrevocably agrees that, subject to the exceptions set forth herein, without the prior written consent of Homology and, solely prior to the Closing, the Company, the undersigned will not, during the period commencing upon the Closing and ending on the date that is 180 days after the Closing Date (the "***Restricted Period***"):

(i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Homology Common Stock or any securities convertible into or exercisable or exchangeable for Homology Common Stock (including without limitation, Homology Common Stock or such other securities which may be deemed to be beneficially owned (as such term is used in Rule 13d-3 of the Exchange Act) by the undersigned in accordance with the rules and regulations of the SEC and securities of Homology which may be issued upon exercise of an option to purchase Homology Common Stock or warrant or settlement of a Homology Restricted Stock Unit) that are currently or hereafter owned of record or beneficially (including holding as a custodian) by the undersigned (collectively, the "***Undersigned's Shares***"), or publicly disclose the intention to make any such offer, sale, pledge, grant, transfer or disposition;

(ii) enter into any swap, short sale, hedge or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Undersigned's Shares regardless of whether any such transaction described in clause (i) above or this clause (ii) is to be settled by delivery of Homology Common Stock or other securities, in cash or otherwise; or

(iii) make any demand for, or exercise any right with respect to, the registration of any shares of Homology Common Stock or any security convertible into or exercisable or exchangeable for Homology Common Stock (other than such rights set forth in the Merger Agreement).

The restrictions and obligations contemplated by this Lock-Up Agreement shall not apply to:

(a) transfers of the Undersigned's Shares:

(i) if the undersigned is a natural person, (A) to any person related to the undersigned by blood or adoption who is an immediate family member of the undersigned, or by marriage or domestic partnership (a "***Family Member***"), or to a trust formed for the direct or indirect benefit of the undersigned or any of the undersigned's Family Members, (B) to the undersigned's estate,

following the death of the undersigned, by will, intestacy or other operation of Law, (C) as a bona fide gift or a charitable contribution, as such term is described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, (D) by operation of Law pursuant to a qualified domestic order or in connection with a divorce settlement, or (E) to any partnership, corporation or limited liability company which is controlled by the undersigned and/or by any such Family Member(s);

(ii) if the undersigned is a corporation, partnership, limited liability company or other entity, (A) to another corporation, partnership, limited liability company, or other entity that is an affiliate (as defined under Rule 12b-2 of the Exchange Act) of the undersigned, including investment funds or other entities under common control or management or advisement with the undersigned (including, for the avoidance of doubt, where the undersigned is a partnership, to its general partner or a successor partnership or fund, or any other funds managed by such partnership), (B) as a distribution or dividend to equity holders, including, without limitation, current or former general or limited partners, members or managers (or to the estates of any of the foregoing), as applicable, of the undersigned (including upon the liquidation and dissolution of the undersigned pursuant to a plan of liquidation approved by the undersigned's equity holders), (C) as a bona fide gift or a charitable contribution, as such term is described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, (D) transfers or dispositions not involving a change in beneficial ownership or (E) with prior written consent of Homology; or

(iii) if the undersigned is a trust, to any grantors or beneficiaries of the trust;

provided that, in the case of any transfer or distribution pursuant to this clause (a), such transfer is not for value and each donee, heir, beneficiary or other transferee or distributee shall sign and deliver to Homology a lock-up agreement in the form of this Lock-Up Agreement with respect to the shares of Homology Common Stock or such other securities that have been so transferred or distributed;

(b) the exercise of an option to purchase Homology Common Stock (including a net or cashless exercise of an option to purchase Homology Common Stock), and any related transfer of shares of Homology Common Stock to Homology or sale of Homology Common Stock in the open market, in each case, for the purpose of paying the exercise price of such options or for paying taxes (including estimated taxes) during the Restricted Period due as a result of the exercise of such options; *provided that*, for the avoidance of doubt, the underlying shares of Homology Common Stock held by the undersigned following such exercise and any such open market sales shall continue to be subject to the restrictions on transfer set forth in this Lock-Up Agreement;

(c) the disposition (including a forfeiture or repurchase) to Homology of any shares of restricted stock granted pursuant to the terms of any employee benefit plan or restricted stock purchase agreement;

(d) the vesting of any restricted stock unit or settlement of any other equity award that represents the right to receive shares of Homology Common Stock, and transfers to Homology, or sales of Homology Common Stock in the open market, in connection with the vesting of any restricted stock unit or settlement of any other equity award that represents the right to receive shares of Homology Common Stock settled in Homology Common Stock, in each case, to pay any tax withholding obligations due during the Restricted Period; *provided that*, for the avoidance of doubt, the underlying shares of Homology Common Stock held by the undersigned following vesting or settlement and any such open market sales shall continue to be subject to the restrictions on transfer set forth in this Lock-Up Agreement;

(e) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act (a "***10b5-1 Plan***") for the transfer of Homology Common Stock; provided that such plan does not provide for any transfers of Homology Common Stock during the Restricted Period, or the sale of Homology Common Stock pursuant to a 10b5-1 Plan existing as of the date of the Merger Agreement (which, for clarity, shall not be amended during the Restricted Period, but may be terminated during the Restricted Period);

(f) transfers, sales, dispositions, or the entering into of transactions (including, without limitation, any swap, hedge or similar agreement) by the undersigned of or relating to shares of capital stock or other securities of

Homology purchased or acquired by the undersigned on the open market, in a public offering by Homology, or that otherwise do not involve or relate to shares of Homology Common Stock issued pursuant to the Merger Agreement in respect of shares of the Company;

(g) pursuant to a bona-fide third party tender offer, merger, consolidation or other similar transaction made to all holders of Homology's capital stock involving a change of control of Homology, provided that in the event that such tender offer, merger, consolidation or other such transaction is not completed, the Undersigned's Shares shall remain subject to the restrictions contained in this Lock-Up Agreement; or

(h) pursuant to an order of a court or regulatory agency.

And *provided, further*, that, with respect to each of (a), (b), (c), (d) and (e) above, no filing by any party (including any donor, donee, transferor, transferee, distributor or distributee) under Section 16 of the Exchange Act or other public announcement shall be made voluntarily in connection with such transfer or disposition during the Restricted Period; *provided* that (i) any filing under Section 16 of the Exchange Act made during the Restricted Period shall clearly indicate in the footnotes thereto that such filing relates to the circumstances described in (a), (b), (c), (d) or (e), as applicable and (ii) the foregoing shall not prevent the undersigned from filing a Form 13F, Schedule 13G or Schedule 13D, or any amendment thereto, or from disclosing its holdings in Homology as required by law or regulation or its internal disclosure policies in the ordinary course of business.

Any attempted transfer in violation of this Lock-Up Agreement will be of no effect and null and void, regardless of whether the purported transferee has any actual or constructive knowledge of the transfer restrictions set forth in this Lock-Up Agreement, and will not be recorded on the share register of Homology. In furtherance of the foregoing, the undersigned agrees that Homology and any duly appointed transfer agent for the registration or transfer of the securities described herein are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Lock-Up Agreement. Homology may cause the legend set forth below, or a legend substantially equivalent thereto, to be placed upon any certificate(s) or other documents, ledgers or instruments evidencing the undersigned's ownership of Homology Common Stock:

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO AND MAY ONLY BE TRANSFERRED IN COMPLIANCE WITH A LOCK-UP AGREEMENT, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that if the Merger Agreement is terminated for any reason, the undersigned shall be released from all obligations under this Lock-Up Agreement. The undersigned understands that Homology and the Company are proceeding with the Contemplated Transactions in reliance upon this Lock-Up Agreement. Notwithstanding anything to the contrary contained herein, this letter agreement will automatically terminate and the undersigned shall be released from all obligations under this letter agreement upon the earliest to occur, if any, of (i) the Company advising the undersigned in writing that it has determined not to proceed with the Contemplated Transactions or (ii) the Merger Agreement being terminated.

Any and all remedies herein expressly conferred upon Homology or the Company will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by Law or equity, and the exercise by Homology or the Company of any one remedy will not preclude the exercise of any other remedy. The undersigned agrees that irreparable damage could occur to Homology and/or the Company in the event that any provision of this Lock-Up Agreement were not performed in accordance with its specific terms or were otherwise breached. It is accordingly agreed that Homology and the Company shall be entitled to seek an injunction or

injunctions to prevent breaches of this Lock-Up Agreement and to enforce specifically the terms and provisions hereof in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which Homology or the Company is entitled at Law or in equity, and the undersigned waives any bond, surety or other security that might be required of Homology or the Company with respect thereto.

In the event that any holder of Homology's securities that are subject to a substantially similar agreement entered into by such holder, other than the undersigned, is permitted by Homology (or prior to the Closing, the Company), including through any written consent granted under subparagraph a(ii)(E) above, to sell or otherwise transfer or dispose of shares of Homology Common Stock for value other than as permitted by this or a substantially similar agreement entered into by such holder or is granted an early release from the restrictions described herein during the Restricted Period, the same percentage of shares of the Undersigned's Shares shall be immediately and fully released on the same terms from any remaining restrictions set forth herein (the "***Pro-Rata Release***"); *provided*, *however*, that such Pro-Rata Release shall not be applied unless and until permission or early release has been granted by Homology, and solely prior to the Closing, the Company, to an equity holder or equity holders to sell or otherwise transfer or dispose of all or a portion of such equity holder's shares of Homology Common Stock that, when combined with all such other such permissions and early releases, represent an aggregate amount in excess of 1% of the number of shares of Homology Common Stock originally subject to a substantially similar agreements. Homology shall notify the undersigned of any Pro Rata Release of its shares on the same day that any permission that triggers the Pro Rata Release is granted.

Upon the release of any of the Undersigned's Shares from this Lock-Up Agreement, Homology will cooperate with the undersigned to facilitate the timely preparation and delivery of certificates representing the Undersigned's Shares without the restrictive legend above or the withdrawal of any stop transfer instructions.

This Lock-Up Agreement and any claim, controversy or dispute arising under or related to this Lock-Up Agreement shall be governed by and construed in accordance with the Laws of the State of Delaware, without regard to the conflict of Laws principles thereof.

This Lock-Up Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Lock-Up Agreement (in counterparts or otherwise) by Homology, the Company and the undersigned by facsimile, electronic mail (including any electronic signature covered by the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docusign.com) or electronic transmission in .pdf format shall be sufficient to bind such parties to the terms and conditions of this Lock-Up Agreement.

(Signature Page Follows)

Very truly yours,

Print Name of Stockholder:

[_____]

Signature (for individuals):

_____

Accepted and Agreed
By Homology Medicines, Inc.:

By: _____
Name: _____
Title: _____

Accepted and Agreed by Q32 Bio Inc.:

By: _____
Name: _____
Title: _____

Annex F

Final Form

LOCK-UP AGREEMENT

November 16, 2023

Q32 Bio Inc.
830 Winter St.
Waltham, MA 02451

Ladies and Gentlemen:

The undersigned signatory of this lock-up agreement (this "***Lock-Up Agreement***") understands that Homology Medicines, Inc., a Delaware corporation ("***Homology***"), has entered into an Agreement and Plan of Merger, dated as of November 16, 2023 (as the same may be amended from time to time, the "***Merger Agreement***") with Kenobi Merger Sub, Inc., a Delaware corporation and a direct, wholly owned subsidiary of Homology, and Q32 Bio Inc., a Delaware corporation (the "***Company***"). Capitalized terms used but not otherwise defined herein shall have the respective meanings ascribed to such terms in the Merger Agreement.

As a condition and inducement to each of the parties to enter into the Merger Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned hereby irrevocably agrees that, subject to the exceptions set forth herein, without the prior written consent of Homology and, solely prior to the Closing, the Company, the undersigned will not, during the period commencing upon the Closing and ending on the date that is 180 days after the Closing Date (the "***Restricted Period***"):

(i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Homology Common Stock or any securities convertible into or exercisable or exchangeable for Homology Common Stock (including without limitation, Homology Common Stock or such other securities which may be deemed to be beneficially owned (as such term is used in Rule 13d-3 of the Exchange Act) by the undersigned in accordance with the rules and regulations of the SEC and securities of Homology which may be issued upon exercise of an option to purchase Homology Common Stock or warrant or settlement of a Homology Restricted Stock Unit) that are currently or hereafter owned of record or beneficially (including holding as a custodian) by the undersigned (collectively, the "***Undersigned's Shares***"), or publicly disclose the intention to make any such offer, sale, pledge, grant, transfer or disposition;

(ii) enter into any swap, short sale, hedge or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Undersigned's Shares regardless of whether any such transaction described in clause (i) above or this clause (ii) is to be settled by delivery of Homology Common Stock or other securities, in cash or otherwise; or

(iii) make any demand for, or exercise any right with respect to, the registration of any shares of Homology Common Stock or any security convertible into or exercisable or exchangeable for Homology Common Stock (other than such rights set forth in the Merger Agreement or the obligations of the Company or the combined company under the Registration Rights Agreement).

The restrictions and obligations contemplated by this Lock-Up Agreement shall not apply to:

(a) transfers of the Undersigned's Shares:

(i) if the undersigned is a natural person, (A) to any person related to the undersigned by blood or adoption who is an immediate family member of the undersigned, or by marriage or domestic partnership (a "***Family Member***"), or to a trust formed for the direct or indirect benefit of the undersigned or any of the undersigned's Family Members, (B) to the undersigned's estate,

following the death of the undersigned, by will, intestacy or other operation of Law, (C) as a bona fide gift or a charitable contribution, as such term is described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, (D) by operation of Law pursuant to a qualified domestic order or in connection with a divorce settlement, or (E) to any partnership, corporation or limited liability company which is controlled by the undersigned and/or by any such Family Member(s);

(ii) if the undersigned is a corporation, partnership, limited liability company or other entity, (A) to another corporation, partnership, limited liability company, or other entity that is an affiliate (as defined under Rule 12b-2 of the Exchange Act) of the undersigned, including investment funds or other entities under common control or management or advisement with the undersigned (including, for the avoidance of doubt, where the undersigned is a partnership, to its general partner or a successor partnership or fund, or any other funds managed by such partnership), (B) as a distribution or dividend to equity holders, including, without limitation, current or former general or limited partners, members or managers (or to the estates of any of the foregoing), as applicable, of the undersigned (including upon the liquidation and dissolution of the undersigned pursuant to a plan of liquidation approved by the undersigned's equity holders), (C) as a bona fide gift or a charitable contribution, as such term is described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, (D) transfers or dispositions not involving a change in beneficial ownership or (E) with prior written consent of Homology; or

(iii) if the undersigned is a trust, to any grantors or beneficiaries of the trust;

provided that, in the case of any transfer or distribution pursuant to this clause (a), such transfer is not for value and each donee, heir, beneficiary or other transferee or distributee shall sign and deliver to Homology a lock-up agreement in the form of this Lock-Up Agreement with respect to the shares of Homology Common Stock or such other securities that have been so transferred or distributed;

(b) the exercise of an option to purchase Homology Common Stock (including a net or cashless exercise of an option to purchase Homology Common Stock), and any related transfer of shares of Homology Common Stock to Homology or sale of Homology Common Stock in the open market, in each case, for the purpose of paying the exercise price of such options or for paying taxes (including estimated taxes) during the Restricted Period due as a result of the exercise of such options; *provided that*, for the avoidance of doubt, the underlying shares of Homology Common Stock held by the undersigned following such exercise and any such open market sales shall continue to be subject to the restrictions on transfer set forth in this Lock-Up Agreement;

(c) the disposition (including a forfeiture or repurchase) to Homology of any shares of restricted stock granted pursuant to the terms of any employee benefit plan or restricted stock purchase agreement;

(d) the vesting of any restricted stock unit or settlement of any other equity award that represents the right to receive shares of Homology Common Stock, and transfers to Homology, or sales of Homology Common Stock in the open market, in connection with the vesting of any restricted stock unit or settlement of any other equity award that represents the right to receive shares of Homology Common Stock settled in Homology Common Stock, in each case, to pay any tax withholding obligations due during the Restricted Period; *provided that*, for the avoidance of doubt, the underlying shares of Homology Common Stock held by the undersigned following such vesting or settlement and any such open market sales shall continue to be subject to the restrictions on transfer set forth in this Lock-Up Agreement;

(e) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act (a "***10b5-1 Plan***") for the transfer of Homology Common Stock; provided that such plan does not provide for any transfers of Homology Common Stock during the Restricted Period, or the sale of Homology Common Stock pursuant to a 10b5-1 Plan existing as of the date of the Merger Agreement (which, for clarity, shall not be amended during the Restricted Period, but may be terminated during the Restricted Period);

(f) transfers, sales, dispositions, or the entering into of transactions (including, without limitation, any swap, hedge or similar agreement) by the undersigned of or relating to shares of capital stock or other securities of Homology purchased or acquired by the undersigned on the open market, in a public offering by Homology, or that otherwise do not involve or relate to shares of Homology Common Stock issued pursuant to the Merger Agreement in respect of shares of the Company;

(g) pursuant to a bona-fide third party tender offer, merger, consolidation or other similar transaction made to all holders of Homology's capital stock involving a change of control of Homology, provided that in the event that such tender offer, merger, consolidation or other such transaction is not completed, the Undersigned's Shares shall remain subject to the restrictions contained in this Lock-Up Agreement; or

(h) pursuant to an order of a court or regulatory agency;

(i) Transfers, sales, dispositions, or the entering into of transactions (including, without limitation, any swap, hedge, or similar agreement), by the undersigned relating to shares of Homology Common Stock issued pursuant to the Merger Agreement in respect of shares of the Company, if any, purchased from the Company pursuant to the Concurrent Financing (as defined in the Merger Agreement) (the "***Q32 Concurrent Financing Released Shares***") or issued in exchange for, or on conversion or exercise of, any securities issued as part of the Concurrent Financing. The number of Q32 Concurrent Financing Released Shares held by each stockholder of the Company is set forth opposite his, her or its name on Schedule I to this Lock-up Agreement under the heading "Q32 Concurrent Financing Released Shares".

And *provided, further*, that, with respect to each of (a), (b), (c), (d) and (e) above, no filing by any party (including any donor, donee, transferor, transferee, distributor or distributee) under Section 16 of the Exchange Act or other public announcement shall be made voluntarily in connection with such transfer or disposition during the Restricted Period; *provided* that (i) any filing under Section 16 of the Exchange Act made during the Restricted Period shall clearly indicate in the footnotes thereto that such filing relates to the circumstances described in (a), (b), (c), (d) or (e), as applicable and (ii) the foregoing shall not prevent the undersigned from filing a Form 13F, Schedule 13G or Schedule 13D, or any amendment thereto, or from disclosing its holdings in Homology as required by law or regulation or its internal disclosure policies in the ordinary course of business.

Any attempted transfer in violation of this Lock-Up Agreement will be of no effect and null and void, regardless of whether the purported transferee has any actual or constructive knowledge of the transfer restrictions set forth in this Lock-Up Agreement, and will not be recorded on the share register of Homology. In furtherance of the foregoing, the undersigned agrees that Homology and any duly appointed transfer agent for the registration or transfer of the securities described herein are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Lock-Up Agreement. Homology may cause the legend set forth below, or a legend substantially equivalent thereto, to be placed upon any certificate(s) or other documents, ledgers or instruments evidencing the undersigned's ownership of Homology Common Stock:

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO AND MAY ONLY BE TRANSFERRED IN COMPLIANCE WITH A LOCK-UP AGREEMENT, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that if the Merger Agreement is terminated for any reason, the undersigned shall be released from all obligations under this Lock-Up Agreement. The undersigned understands that Homology and the Company are proceeding with the Contemplated Transactions in reliance upon this Lock-Up Agreement. Notwithstanding anything to the contrary contained herein, this letter agreement will automatically

terminate and the undersigned shall be released from all obligations under this letter agreement upon the earliest to occur, if any, of (i) the Company advising the undersigned in writing that it has determined not to proceed with the Contemplated Transactions or (ii) the Merger Agreement being terminated.

Any and all remedies herein expressly conferred upon Homology or the Company will be deemed cumulative with and not exclusive of any other remedy conferred hereby, or by Law or equity, and the exercise by Homology or the Company of any one remedy will not preclude the exercise of any other remedy. The undersigned agrees that irreparable damage could occur to Homology and/or the Company in the event that any provision of this Lock-Up Agreement were not performed in accordance with its specific terms or were otherwise breached. It is accordingly agreed that Homology and the Company shall be entitled to seek an injunction or injunctions to prevent breaches of this Lock-Up Agreement and to enforce specifically the terms and provisions hereof in any court of the United States or any state having jurisdiction, this being in addition to any other remedy to which Homology or the Company is entitled at Law or in equity, and the undersigned waives any bond, surety or other security that might be required of Homology or the Company with respect thereto.

In the event that any holder of Homology's securities that are subject to a substantially similar agreement entered into by such holder, other than the undersigned, is permitted by Homology (or prior to the Closing, the Company), including through any written consent granted under subparagraph a(ii)(E) above, to sell or otherwise transfer or dispose of shares of Homology Common Stock for value other than as permitted by this or a substantially similar agreement entered into by such holder or is granted an early release from the restrictions described herein during the Restricted Period, the same percentage of shares of the Undersigned's Shares shall be immediately and fully released on the same terms from any remaining restrictions set forth herein (the "***Pro-Rata Release***"); *provided*, *however*, that such Pro-Rata Release shall not be applied unless and until permission or early release has been granted by Homology, and solely prior to the Closing, the Company, to an equity holder or equity holders to sell or otherwise transfer or dispose of all or a portion of such equity holder's shares of Homology Common Stock that, when combined with all such other such permissions and early releases, represent an aggregate amount in excess of 1% of the number of shares of Homology Common Stock originally subject to a substantially similar agreements. Homology shall notify the undersigned of any Pro Rata Release of its shares on the same day that any permission that triggers the Pro Rata Release is granted.

Upon the release of any of the Undersigned's Shares from this Lock-Up Agreement, Homology will cooperate with the undersigned to facilitate the timely preparation and delivery of certificates representing the Undersigned's Shares without the restrictive legend above or the withdrawal of any stop transfer instructions.

This Lock-Up Agreement and any claim, controversy or dispute arising under or related to this Lock-Up Agreement shall be governed by and construed in accordance with the Laws of the State of Delaware, without regard to the conflict of Laws principles thereof.

This Lock-Up Agreement may be executed in several counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument. The exchange of a fully executed Lock-Up Agreement (in counterparts or otherwise) by Homology, the Company and the undersigned by facsimile, electronic mail (including any electronic signature covered by the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docusign.com) or electronic transmission in .pdf format shall be sufficient to bind such parties to the terms and conditions of this Lock-Up Agreement.

(Signature Page Follows)

Very truly yours,

Print Name of Stockholder:

[_____]

Signature (for individuals):

_____

Signature (for entities):

By: _____
Name: _____
Title: _____

Accepted and Agreed
By Homology Medicines, Inc.:

By: _____
Name: _____
Title: _____

Accepted and Agreed by Q32 Bio Inc.:

By: _____
Name: _____
Title: _____

Annex G

PROPOSED AMENDMENT TO RESTATED CERTIFICATE OF INCORPORATION

CERTIFICATE OF AMENDMENT TO

RESTATED CERTIFICATE OF INCORPORATION

OF

HOMOLOGY MEDICINES, INC.

Homology Medicines, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify as follows:

FIRST: That the board of directors of the Corporation duly adopted resolutions recommending and declaring advisable that the Restated Certificate of Incorporation of the Corporation be amended and that such amendment be submitted to the stockholders of the Corporation for their consideration, as follows:

RESOLVED, that the first sentence of Article FOURTH of the Restated Certificate of Incorporation be, and hereby is, amended and restated in its entirety to read as follows:

"**Authorized Stock**. The total number of shares of all classes of stock which the Corporation shall have authority to issue is 410,000,000 shares, consisting of (a) 400,000,000 shares of Common Stock, $0.0001 par value per share ("Common Stock"), and (b) 10,000,000 shares of Preferred Stock, $0.0001 par value per share ("Preferred Stock").

Reverse Stock Split. That, effective at 5:00 p.m., Eastern time, on the date this Certificate of Amendment to the Restated Certificate of Incorporation is filed with the Secretary of State of the State of Delaware (the "Effective Time"), a one-for-[ ][1] reverse stock split of the Common Stock (as defined below) shall become effective, pursuant to which each [ ][3] shares of Common Stock issued and held of record by each stockholder of the Corporation (including treasury shares) immediately prior to the Effective Time shall be reclassified and combined into one validly issued, fully paid and nonassessable share of Common Stock automatically and without any action by the holder thereof upon the Effective Time and shall represent one share of Common Stock from and after the Effective Time (such reclassification and combination of shares, the "Reverse Stock Split"). No fractional shares of Common Stock shall be issued as a result of the Reverse Stock Split and, in lieu thereof, (a) with respect to holders of one or more certificates, if any, which formerly represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time, upon surrender after the Effective Time of such certificate or certificates, any holder who would otherwise be entitled to a fractional share of Common Stock as a result of the Reverse Stock Split, following the Effective Time, shall be entitled to receive a cash payment (the "Fractional Share Payment") equal to the fraction of which such holder would otherwise be entitled multiplied by the closing price per share of Common Stock on the date of the Effective Time as reported by The Nasdaq Global Select Market (as adjusted to give effect to the Reverse Stock Split); provided that, whether or not fractional shares would be issuable as a result of the Reverse Stock Split shall be determined on the basis of (i) the total number of shares of Common Stock that were issued and outstanding immediately prior to the Effective Time formerly represented by certificates that the holder is at the time surrendering and (ii) the aggregate number of shares of Common Stock

[1] Shall be a whole number between and including 1-for-10 and 1-for-30, which number is referred to as the "Reverse Split Factor" (it being understood that any Reverse Split Factor within such range shall, together with the remaining provisions of this Certificate of Amendment not appearing in brackets, constitute a separate amendment being approved and adopted by the Board and stockholders in accordance with Section 242 of the Delaware General Corporation Law).

after the Effective Time into which the shares of Common Stock formerly represented by such certificates shall have been reclassified; and (b) with respect to holders of shares of Common Stock in book-entry form in the records of the Corporation's transfer agent that were issued and outstanding immediately prior to the Effective Time, any holder who would otherwise be entitled to a fractional share of Common Stock as a result of the Reverse Stock Split (after aggregating all fractional shares), following the Effective Time, shall be entitled to receive the Fractional Share Payment automatically and without any action by the holder."

SECOND: That, at a meeting of stockholders of the Corporation, the aforesaid amendment was duly adopted by the stockholders of the Corporation.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its [ ] on this [ ] day of [ ] 2024.

HOMOLOGY MEDICINES, INC.

By: _____
Name:
Title:

Annex H

Opinion of Cowen and Company, LLC

November 15, 2023

The Board of Directors
Homology Medicines, Inc.
One Patriots Park
Bedford, Massachusetts 01730

The Board of Directors:

In your capacity as the Board of Directors (the "Board of Directors") of Homology Medicines, Inc. ("Homology"), you have requested our opinion (the "Opinion"), as investment bankers, as to the fairness, from a financial point of view, to Homology of the Q32 Equity Value (as defined below) provided for pursuant to the terms of an Agreement and Plan of Merger (the "Merger Agreement") proposed to be entered into among Homology, Kenobi Merger Sub, Inc., a wholly owned subsidiary of Homology ("Merger Sub"), and Q32 Bio Inc. ("Q32").

As more fully described in the Merger Agreement, and subject to the terms and conditions set forth therein, Merger Sub will be merged with and into Q32 (the "Merger"), with Q32 surviving the Merger as a wholly owned subsidiary of Homology, in connection with which Q32 will be ascribed an aggregate equity value of $195 million (the "Q32 Equity Value").

We understand that, in connection with the Merger, (i) all outstanding shares of the common stock, par value $0.0001 per share, of Q32 ("Q32 Common Stock") will be converted into the right to receive shares of the common stock, par value $0.0001 per share, of Homology ("Homology Common Stock"), (ii) Q32 will effect the conversion of all outstanding shares of preferred stock of Q32 ("Q32 Preferred Stock") and all outstanding convertible notes of Q32 ("Q32 Convertible Notes") into shares of Q32 Common Stock immediately prior to the effective time of the Merger, (iii) Homology may dispose of its assets and rights relating to its HMI-103 (Adult/Pediatric PKU), HMI-203 (MPS II (Hunter Syndrome)), HMI-204 (MLD), capsids and AAVHSC platform, including any equity interests held by Homology in Oxford Biomedica Solutions, LLC or its affiliates (collectively, the "Homology Legacy Assets"), and holders of Homology Common Stock will receive contingent value rights relating to the net proceeds received from any such disposition (or commercialization of any such assets) occurring within a specified disposition period ("Homology CVRs"), (iv) Q32 will consummate a financing immediately prior to the effective time of the Merger through the private placement of its capital stock for aggregate gross cash proceeds of at least $42 million based on a pre-money equity valuation for Q32 equal to the Q32 Equity Value (the "Concurrent Financing") and (v) Homology will effect a reverse stock split of all outstanding shares of Homology Common Stock prior to the effective time of the Merger (the transactions described in the foregoing clauses (i) through (v) and the other transactions contemplated by the Merger Agreement (other than the Merger), collectively, the "related transactions"). The terms and conditions of the Merger and the related transactions are more fully set forth in the Merger Agreement and related documents.

Cowen and Company, LLC ("we" or "TD Cowen"), as part of its investment banking business, is continually engaged in the valuation of businesses and their securities in connection with mergers and acquisitions, negotiated underwritings, secondary distributions of listed and unlisted securities, private placements and valuations for corporate and other purposes. In the ordinary course of our business, we and our affiliates may actively trade the securities of Homology and/or its affiliates for our own account and for the accounts of our customers and, accordingly, may at any time hold a long or short position in such securities.

We are acting as financial advisor to Homology in connection with the Merger and will receive a fee from Homology for our services, a significant portion of which is contingent upon consummation of the Merger. We

also will receive a fee in connection with this Opinion. In addition, Homology has agreed to reimburse our expenses and indemnify us for certain liabilities that may arise out of our engagement. TD Cowen in the past has provided, currently is providing and in the future may provide financial advisory and/or investment banking services to Homology and/or its affiliates unrelated to the Merger, for which services TD Cowen has received and expects to receive compensation, including during the two years preceding the date of this Opinion having served as sales agent for certain at-the-market offerings of Homology Common Stock. Although TD Cowen has not had a material relationship with Q32 during the two years preceding the date of this Opinion, TD Cowen in the future may provide services to Q32 and/or its affiliates and may receive compensation for the rendering of such services.

In connection with our Opinion, we have reviewed and considered such financial and other matters as we have deemed relevant, including, among other things:

- a final form, provided to us on November 15, 2023, of the Merger Agreement;
- certain publicly available financial and other information for Homology and certain other relevant financial and operating data furnished to TD Cowen by the management of Homology;
- certain financial and other information for Q32 and certain other relevant financial and operating data furnished to TD Cowen by the managements of Homology and Q32;
- certain internal financial analyses, probability-adjusted financial forecasts, reports and other information concerning Q32 prepared by the management of Q32 as adjusted by the management of Homology (as adjusted, the "Q32 Forecasts");
- discussions we have had with certain members of the managements of Homology and Q32, as the case may be, concerning the historical and current business operations, financial conditions and prospects of Homology and Q32 and such other matters that we deemed relevant;
- certain operating results of, and financial information for, Q32 as compared to similar information for certain publicly traded companies that we deemed relevant; and
- such other information, financial studies, analyses and investigations and such other factors that we deemed relevant for the purposes of this Opinion.

In conducting our review and arriving at our Opinion, we have, at your direction, assumed and relied, without independent investigation, upon the accuracy and completeness of all financial and other information provided to us by Homology and Q32 or which is publicly available or was otherwise reviewed by us. We have not undertaken any responsibility for the accuracy, completeness or reasonableness of, or independent verification of, such information. We have relied upon the respective representations of Homology and Q32 that all information provided to us by Homology and Q32 is accurate and complete in all material respects and we expressly disclaim any undertaking or obligation to advise any person of any change in any fact or matter affecting our Opinion of which we become aware after the date hereof.

We have been advised that, given that Homology's assets and liabilities are comprised of cash (net of liabilities) and the Homology Legacy Assets (which currently are contemplated to be sold) and that Homology is not expected to have any continuing business operations on a standalone basis other than those incidental to Homology's status as a publicly traded company, the management of Homology has not prepared financial forecasts relating to Homology. Accordingly, we have not performed a financial analysis of Homology or the Homology CVRs. We also have assumed that, when delivered as contemplated by the Merger Agreement, additional financial statements and other financial information relating to Q32 will not reflect any information that would be meaningful in any respect to our analyses or Opinion. We further have assumed, at your direction, that the Q32 Forecasts (as adjusted by the management of Homology) were reasonably prepared by the managements of Homology and Q32, as the case may be, on bases reflecting the best currently available estimates and good faith judgments of such managements as to the future performance of Q32 and the other matters covered thereby, and that such Q32 Forecasts utilized in our analyses provide a reasonable basis for our

Opinion. We have relied on the assessments of the managements of Homology and Q32 as to, among other things, (i) the product pipeline, future products, technology and intellectual property of Q32, including the viability of and risks associated with such product pipeline, future products, technology and intellectual property, and (ii) the terms of the Concurrent Financing, including with respect to the timing, amount, valuation and other terms involved and potential impact thereof. We have assumed that there will be no developments with respect to any such matters that would have an adverse effect on Q32, Homology, the Merger or the related transactions (including the contemplated benefits thereof) or that otherwise would be meaningful in any respect to our analyses or Opinion. We express no opinion as to the Q32 Forecasts or the assumptions on which they are based.

In addition, we have assumed that there have been no material changes in the assets, liabilities, financial condition, results of operations, businesses or prospects of Q32 or Homology since the dates of the last financial statements made available to us. We have not made or obtained any independent evaluations, valuations or appraisals of the assets or liabilities (contingent, accrued, derivative, off-balance sheet or otherwise) of Q32, Homology or any other entity, nor have we been furnished with such materials. We have not conducted nor have we assumed any obligation to conduct any physical inspection of the properties or facilities of Q32, Homology or any other entity. We also have not evaluated the solvency or fair value of Q32, Homology or any other entity under any state, federal or foreign laws relating to bankruptcy, insolvency or similar matters. In addition, we have not undertaken an independent evaluation of any actual or potential litigation, settlements, governmental or regulatory proceedings or investigations, possible unasserted claims or other contingent liabilities to which Q32, Homology or any other entity may be a party or subject. We have assumed that the Merger will qualify for the intended tax treatment contemplated by the Merger Agreement. Our Opinion does not address any legal, tax, accounting or regulatory matters related to the Merger Agreement, the Merger or any related transactions, as to which we have assumed that Homology and the Board of Directors have received such advice from legal, tax, accounting and regulatory advisors as each has determined appropriate.

Our Opinion addresses only the fairness of the Q32 Equity Value, from a financial point of view, to Homology. We express no view as to any related transactions (including, without limitation, the Concurrent Financing), the Homology CVRs or any other aspect or implication of the Merger, including, without limitation, any support or lock-up agreements, subscription agreements or any other agreement, arrangement or understanding entered into in connection with the Merger, any related transactions or otherwise. Our Opinion is necessarily based upon economic and market conditions and other circumstances as they exist and can be evaluated by us on the date hereof. It should be understood that although subsequent developments may affect our Opinion, we do not have any obligation to update, revise or reaffirm our Opinion and we expressly disclaim any responsibility to do so.

We have not considered any potential legislative or regulatory changes currently being considered or recently enacted by the United States or any foreign government, or any domestic or foreign regulatory body, or any changes in accounting methods or generally accepted accounting principles that may be adopted by the Securities and Exchange Commission, the Financial Accounting Standards Board, or any similar foreign regulatory body or board.

For purposes of rendering our Opinion, we have assumed in all respects material to our analyses that the representations and warranties of each party contained in the Merger Agreement are true and correct, that each party will perform all of the covenants and agreements required to be performed by it under the Merger Agreement and that all conditions to the consummation of the Merger and the related transactions will be satisfied without waiver thereof. We also have assumed that the final executed form of the Merger Agreement will be substantially similar to the final form reviewed by us. We further have assumed that all governmental, regulatory and other consents and approvals contemplated by the Merger Agreement will be obtained and that in the course of obtaining any of those consents no restrictions will be imposed or waivers made that would have an adverse effect on Q32, Homology, the Merger or the related transactions (including the contemplated benefits thereof). In addition, we have assumed that the Merger and the related transactions will be consummated in a manner that complies with the applicable provisions of the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, and all other applicable state or federal statutes, rules and regulations.

It is understood that our Opinion is intended for the benefit and use of the Board of Directors (in its capacity as such) in its evaluation of the Q32 Equity Value. Our Opinion should not be disclosed, referred to, or communicated (in whole or in part) to any third party for any purpose whatsoever except with our prior written approval. However, our Opinion may be reproduced in full in any proxy statement or registration statement relating to the Merger that Homology is required to file under the Securities Exchange Act of 1934, as amended, and mail to securityholders of Homology. Our Opinion does not constitute a recommendation to the Board of Directors on whether or not to approve the Merger or any related transactions or to any securityholder or any other person as to how to vote or act with respect to the Merger, any related transactions or otherwise. We are not expressing any opinion as to the actual value, price or trading range of any securities of Homology (including Homology Common Stock and Homology CVRs) or Q32 (including Q32 Common Stock, Q32 Preferred Stock and Q32 Convertible Notes) upon or following announcement or consummation of the Merger and the related transactions. We have not been requested to opine as to, and our Opinion does not in any manner address, Homology's underlying business decision to effect the Merger or the related transactions or the relative merits of the Merger or the related transactions as compared to other business strategies or transactions that might be available to Homology, including a liquidation of Homology. In addition, we have not been requested to opine as to, and our Opinion does not in any manner address, (i) the fairness of the amount or nature of the compensation to the officers, directors or employees, or class of such persons, of any parties to the Merger or any related transactions relative to the Q32 Equity Value or otherwise or (ii) the fairness of the Merger, any related transactions or the Q32 Equity Value to the holders of any class of securities, creditors or other constituencies of Homology or Q32.

The issuance of this Opinion was reviewed and approved by TD Cowen's Fairness Opinion Review Committee.

Based upon and subject to the foregoing, including the various assumptions and limitations set forth herein, it is our opinion that, as of the date hereof, the Q32 Equity Value provided for pursuant to the Merger Agreement is fair, from a financial point of view, to Homology.

Very truly yours,

COWEN AND COMPANY, LLC

Annex I

Q32 BIO INC.

2024 STOCK OPTION AND INCENTIVE PLAN

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the Q32 Bio Inc. 2024 Stock Option and Incentive Plan (as amended from time to time, the "Plan"). The purpose of the Plan is to encourage and enable the officers, employees, Non-Employee Directors and Consultants of Q32 Bio Inc. (the "Company") and its Affiliates upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company's welfare will assure a closer identification of their interests with those of the Company and its stockholders, thereby stimulating their efforts on the Company's behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

"*Act*" means the U.S. Securities Act of 1933, as amended, and the rules and regulations thereunder.

"*Administrator*" means either the Board or the compensation committee of the Board or a similar committee performing the functions of the compensation committee and which is comprised of not less than two Non-Employee Directors who are independent.

"*Affiliate*" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Act. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

"*Award*" or "*Awards*," except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Units, Restricted Stock Awards, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights.

"*Award Agreement*" means a written or electronic document setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Agreement is subject to the terms and conditions of the Plan.

"*Board*" means the Board of Directors of the Company.

"*Cash-Based Award*" means an Award entitling the recipient to receive a cash-denominated payment.

"*Closing Date*" means the date of the closing of the transactions contemplated by that certain Agreement and Plan of Merger by and among Homology Medicines, Inc., the Company and Kenobi Merger Sub, Inc., dated as of November 16, 2023.

"*Code*" means the U.S. Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

"*Consultant*" means a consultant or adviser who provides bona fide services to the Company or an Affiliate as an independent contractor and who qualifies as a consultant or advisor under Instruction A.1.(a)(1) of Form S-8 under the Act.

"*Dividend Equivalent Right*" means an Award entitling the grantee to receive credits based on ordinary cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the grantee.

"*Effective Date*" means the date on which the Plan becomes effective as set forth in Section 19.

"*Exchange Act*" means the U.S. Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

"*Fair Market Value*" of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is listed on the National Association of Securities Dealers Automated Quotation System ("NASDAQ"), NASDAQ Global Market, The New York Stock Exchange or another national securities exchange or traded on any established market, the determination shall be made by reference to the closing price. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price.

"*Incentive Stock Option*" means any Stock Option designated and qualified as an "incentive stock option" as defined in Section 422 of the Code.

"*Non-Employee Director*" means a member of the Board who is not also an employee of the Company or any Subsidiary.

"*Non-Qualified Stock Option*" means any Stock Option that is not an Incentive Stock Option.

"*Option*" or "*Stock Option*" means any option to purchase shares of Stock granted pursuant to Section 5.

"*Restricted Shares*" means the shares of Stock underlying a Restricted Stock Award that remain subject to a risk of forfeiture or the Company's right of repurchase.

"*Restricted Stock Award*" means an Award of Restricted Shares subject to such restrictions and conditions as the Administrator may determine at the time of grant.

"*Restricted Stock Units*" means an Award of stock units subject to such restrictions and conditions as the Administrator may determine at the time of grant.

"*Sale Event*" shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization, consolidation, or similar transaction pursuant to which the holders of the Company's outstanding voting power and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company's outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

"*Sale Price*" means the value as determined by the Administrator of the consideration payable, or otherwise to be received by stockholders, per share of Stock pursuant to a Sale Event.

"*Section 409A*" means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

"*Service Relationship*" means any relationship as an employee, Non-Employee Director or Consultant of the Company or any Affiliate. Unless as otherwise set forth in the Award Agreement, a Service Relationship shall be deemed to continue without interruption in the event a grantee's status changes from full-time employee to part-time employee or a grantee's status changes from employee to Consultant or Non-Employee Director or vice versa, provided that there is no interruption or other termination of Service Relationship in connection with the grantee's change in capacity.

"*Stock*" means the Common Stock, par value $0.0001 per share, of the Company, subject to adjustments pursuant to Section 3.

"*Stock Appreciation Right*" means an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Agreement) having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

"*Subsidiary*" means any corporation or other entity (other than the Company) in which the Company has at least a 50 percent interest, either directly or indirectly.

"*Ten Percent Owner*" means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation.

"*Unrestricted Stock Award*" means an Award of shares of Stock free of any restrictions.

SECTION 2. ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a) Administration of Plan. The Plan shall be administered by the Administrator.

(b) Powers of Administrator. The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Restricted Stock Units, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of shares of Stock to be covered by any Award;

(iv) to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the forms of Award Agreements;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award;

(vi) subject to the provisions of Section 5(c) or 6(d), to extend at any time the period in which Stock Options or Stock Appreciation Rights, respectively, may be exercised; and

(vii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan grantees.

(c) Delegation of Authority to Grant Awards. Subject to applicable law, the Administrator, in its discretion, may delegate to a committee consisting of one or more officers of the Company, including the Chief Executive Officer of the Company, all or part of the Administrator's authority and duties with respect to the granting of Awards to individuals who are (i) not subject to the reporting and other provisions of Section 16 of the Exchange Act and (ii) not members of the delegated committee. Any such delegation by the Administrator shall include a limitation as to the amount of Stock underlying Awards that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator's delegate or delegates that were consistent with the terms of the Plan.

(d) Award Agreement. Awards under the Plan shall be evidenced by Award Agreements that set forth the terms, conditions and limitations for each Award which may include, without limitation, the term of an Award and the provisions applicable in the event the Service Relationship terminates.

(e) Indemnification. Neither the Board nor the Administrator, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Administrator (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's articles or bylaws or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(f) Non-U.S. Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and its Affiliates operate or have employees or other individuals eligible for Awards, the Administrator, in its sole discretion, shall have the power and authority to: (i) determine which Affiliates shall be covered by the Plan; (ii) determine which individuals outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Administrator determines such actions to be necessary or advisable (and such subplans and/or modifications shall be incorporated into and made part of this Plan); provided, however, that no such subplans and/or modifications shall increase the share limitations contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Administrator determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals. Notwithstanding the foregoing, the Administrator may not take any actions hereunder, and no Awards shall be granted, that would violate the Exchange Act or any other applicable United States securities law, the Code, or any other applicable United States governing statute or law.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 51,117,985 shares (the "Initial Limit"), plus on January 1, 2025 and on each January 1 thereafter, the number of shares of Stock reserved and available for issuance under the Plan shall be cumulatively increased by five percent (5%) of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31, or such lesser number of shares as approved by the Administrator, in all cases subject to adjustment as provided in this Section 3(c) (the "Annual Increase"). Subject to such overall limitation, the maximum aggregate number of shares of Stock that may be issued in the form of Incentive Stock Options shall not exceed the Initial Limit cumulatively increased on January 1, 2025 and on each January 1 thereafter by the lesser of the Annual Increase for such year or 51,117,985 shares of Stock, subject in all cases to adjustment as provided in Section 3(c). For purposes of this Plan, the shares of Stock underlying any awards under the Plan and the shares of Common Stock of the Company underlying any awards under the Company's 2017 Stock Option and Grant Plan, the Homology Medicines 2015 Stock Incentive Plan and the Homology Medicines, Inc. 2018

Incentive Award Plan, each as amended from time to time, that are forfeited, canceled, held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) shall be added back to the shares of Stock available for issuance under the Plan and, to the extent permitted under Section 422 of the Code and the regulations promulgated thereunder, the shares of Stock that may be issued as Incentive Stock Options. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company. Awards that may be settled solely in cash shall not be counted against the share reserve, nor shall they reduce the shares of Stock authorized for grant to a grantee in any calendar year.

(b) Maximum Awards to Non-Employee Directors. Notwithstanding anything to the contrary in this Plan, the value of all Awards awarded under this Plan and all other cash compensation paid by the Company to any Non-Employee Director for services as a Non-Employee Director in any calendar year shall not exceed: (i) $1,000,000 in the first calendar year an individual becomes a Non-Employee Director and (ii) $750,000 in any other calendar year. For the purpose of this limitation, the value of any Award shall be its grant date fair value, as determined in accordance with ASC Topic 718 or successor provision but excluding the impact of estimated forfeitures related to service-based vesting provisions.

(c) Changes in Stock. Subject to Section 3(d) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, extraordinary cash dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, including the maximum number of shares that may be issued in the form of Incentive Stock Options, (ii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iii) the repurchase price, if any, per share subject to each outstanding Restricted Stock Award, and (iv) the exercise price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of shares subject to Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The Administrator shall also make equitable or proportionate adjustments in the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration cash dividends paid other than in the ordinary course or any other extraordinary corporate event. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

(d) Mergers and Other Transactions. In the case of and subject to the consummation of a Sale Event, the parties thereto may cause the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree. To the extent that the parties to such Sale Event do not provide for the assumption, continuation or substitution of Awards, upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate. In addition, except as may be otherwise provided in the relevant Award Agreement, all Options and Stock Appreciation Rights with time-based vesting conditions or restrictions that are not vested and/or exercisable immediately prior to the effective time of the Sale Event shall become fully vested and exercisable

as of the effective time of the Sale Event, all other Awards with time-based vesting, conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the Sale Event, and all Awards with conditions and restrictions relating to the attainment of performance goals shall become vested and nonforfeitable in connection with a Sale Event at the greater of (A) target levels of performance or (B) actual performance. The Company shall have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the Sale Price multiplied by the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights (provided that, in the case of an Option or Stock Appreciation Right with an exercise price equal to or greater than the Sale Price, such Option or Stock Appreciation Right shall be cancelled for no consideration); or (ii) each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights held by such grantee; provided, however, the exercise of Options not exercisable prior to the Sale Event shall be subject to the consummation of the Sale Event. The Company shall also have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding other Awards in an amount equal to the Sale Price multiplied by the number of vested shares of Stock under such Awards (after taking into account the acceleration hereunder).

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such employees, Non-Employee Directors or Consultants of the Company and its Affiliates as are selected from time to time by the Administrator in its sole discretion; provided that Awards may not be granted to employees, Non-Employee Directors or Consultants who are providing services only to any "parent" of the Company, as such term is defined in Rule 405 of the Act, unless (i) the stock underlying the Awards is treated as "service recipient stock" under Section 409A or (ii) the Company has determined that such Awards are exempt from or otherwise comply with Section 409A.

SECTION 5. STOCK OPTIONS

(a) Award of Stock Options. The Administrator may grant Stock Options under the Plan. Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a "subsidiary corporation" within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

Stock Options granted pursuant to this Section 5 shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee's election, subject to such terms and conditions as the Administrator may establish.

(b) Exercise Price. The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5 shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the exercise price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the date of grant. Notwithstanding the foregoing, Stock Options may be granted with an exercise price per share that is less than 100 percent of the Fair Market Value on the date of grant (i) pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code, (ii) to individuals who are not subject to U.S. income tax on the date of grant or (iii) if the Stock Option is otherwise compliant with Section 409A.

(c) Option Term. The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the date of grant.

(d) Exercisability; Rights of a Stockholder. Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the date of grant. The Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(e) Method of Exercise. Stock Options may be exercised in whole or in part, by giving written or electronic notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods except to the extent otherwise provided in the Award Agreement:

(i) In cash, by certified or bank check or other instrument acceptable to the Administrator;

(ii) Through the delivery (or attestation to the ownership following such procedures as the Company may prescribe) of shares of Stock that are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date;

(iii) By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Company shall prescribe as a condition of such payment procedure; or

(iv) With respect to Stock Options that are not Incentive Stock Options, by a “net exercise” arrangement pursuant to which the Company will reduce the number of shares of Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. The transfer to the optionee on the records of the Company or of the transfer agent of the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Award Agreement or applicable provisions of laws (including the satisfaction of any taxes that the Company or an Affiliate is obligated to withhold with respect to the optionee). In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of attested shares. In the event that the Company establishes, for itself or using the services of a third party, an automated system for the exercise of Stock Options, such as a system using an internet website or interactive voice response, then the paperless exercise of Stock Options may be permitted through the use of such an automated system.

(f) Annual Limit on Incentive Stock Options. To the extent required for “incentive stock option” treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed $100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option. For purposes of this Section 5(f), Incentive Stock Options will be taken into account in the order in which they were granted, the Fair Market Value of the shares of Stock will be determined as of the time the Stock Option with respect to such shares of Stock is granted, and calculation will be performed in accordance with Section 422 of the Code and Treasury Regulations promulgated thereunder.

SECTION 6. STOCK APPRECIATION RIGHTS

(a) Award of Stock Appreciation Rights. The Administrator may grant Stock Appreciation Rights under the Plan. A Stock Appreciation Right is an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Agreement) having a value equal to the excess of the Fair Market Value of a share of Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

(b) Exercise Price of Stock Appreciation Rights. The exercise price of a Stock Appreciation Right shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant. Notwithstanding the foregoing, Stock Appreciation Rights may be granted with an exercise price per share that is less than 100 percent of the Fair Market Value on the date of grant (i) pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code, (ii) to individuals who are not subject to U.S. income tax on the date of grant, or (iii) if the Stock Appreciation Right is otherwise compliant with Section 409A.

(c) Grant and Exercise of Stock Appreciation Rights. Stock Appreciation Rights may be granted by the Administrator independently of any Stock Option granted pursuant to Section 5 of the Plan.

(d) Terms and Conditions of Stock Appreciation Rights. Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined on the date of grant by the Administrator. The term of a Stock Appreciation Right may not exceed ten years. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

SECTION 7. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Administrator may grant Restricted Stock Awards under the Plan. A Restricted Stock Award is any Award of Restricted Shares subject to such restrictions and conditions as the Administrator may determine at the time of grant. Conditions may be based on continuing employment (or other Service Relationship) and/or achievement of pre-established performance goals and objectives.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Shares and receipt of dividends; provided that if the lapse of restrictions with respect to the Restricted Stock Award is tied to the attainment of vesting conditions, any dividends paid by the Company shall accrue and shall not be paid to the grantee until and to the extent the vesting conditions are met with respect to the Restricted Stock Award. Unless the Administrator shall otherwise determine, (i) uncertificated Restricted Shares shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Shares are vested as provided in Section 7(d) below, and (ii) certificated Restricted Shares shall remain in the possession of the Company until such Restricted Shares are vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company such instruments of transfer as the Administrator may prescribe.

(c) Restrictions. Restricted Shares may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award Agreement. Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award is issued, if a grantee's employment (or other Service Relationship) with the Company and its Affiliates terminates for any reason, any Restricted Shares that have not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other Service Relationship), and thereafter shall cease to represent any ownership

of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of Restricted Shares that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

(d) Vesting of Restricted Shares. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Shares and the Company's right of repurchase or forfeiture shall lapse. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Shares and shall be deemed "vested."

SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Administrator may grant Restricted Stock Units under the Plan. A Restricted Stock Unit is an Award of stock units that may be settled in shares of Stock (or cash, to the extent explicitly provided for in the Award Agreement) upon the satisfaction of such restrictions and conditions at the time of grant. Conditions may be based on continuing employment (or other Service Relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. Restricted Stock Units with deferred settlement dates are subject to Section 409A and shall contain such additional terms and conditions as the Administrator shall determine in its sole discretion in order to comply with the requirements of Section 409A.

(b) Election to Receive Restricted Stock Units in Lieu of Compensation. The Administrator may, in its sole discretion, permit a grantee to elect to receive a portion of future cash compensation otherwise due to such grantee in the form of an award of Restricted Stock Units. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with Section 409A and such other rules and procedures established by the Administrator. Any such future cash compensation that the grantee elects to defer shall be converted to a fixed number of Restricted Stock Units based on the Fair Market Value of Stock on the date the compensation would otherwise have been paid to the grantee if such payment had not been deferred as provided herein. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate. Any Restricted Stock Units that are elected to be received in lieu of cash compensation shall be fully vested, unless otherwise provided in the Award Agreement.

(c) Rights as a Stockholder. A grantee shall have the rights as a stockholder only as to shares of Stock acquired by the grantee upon settlement of Restricted Stock Units; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the stock units underlying his or her Restricted Stock Units, subject to the provisions of Section 11 and such terms and conditions as the Administrator may determine.

(d) Termination. Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of Service Relationship) with the Company and its Affiliates for any reason.

SECTION 9. UNRESTRICTED STOCK AWARDS

Grant or Sale of Unrestricted Stock. The Administrator may grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award under the Plan. An Unrestricted Stock Award is an Award pursuant to which the grantee may receive shares of Stock free of any restrictions under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 10. CASH-BASED AWARDS

Grant of Cash-Based Awards. The Administrator may grant Cash-Based Awards under the Plan. A Cash-Based Award is an Award that entitles the grantee to a payment in cash upon the attainment of specified performance goals, including continued employment (or other Service Relationship). The Administrator shall determine the maximum duration of the Cash-Based Award, the amount of cash to which the Cash-Based Award pertains, the conditions upon which the Cash-Based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-Based Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-Based Award shall be made in accordance with the terms of the Award and may be made in cash.

SECTION 11. DIVIDEND EQUIVALENT RIGHTS

(a) Dividend Equivalent Rights. The Administrator may grant Dividend Equivalent Rights under the Plan. A Dividend Equivalent Right is an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other Award to which it relates) if such shares had been issued to the grantee. A Dividend Equivalent Right may be granted hereunder to any grantee as a component of an award of Restricted Stock Units or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the Award Agreement. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid currently or may be deemed to be reinvested in additional shares of Stock, which may thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of an Award of Restricted Stock Units shall provide that such Dividend Equivalent Right shall be settled only upon settlement or payment of, or lapse of restrictions on, such other Award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other Award.

(b) Termination. Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award is issued, a grantee's rights in all Dividend Equivalent Rights shall automatically terminate upon the grantee's termination of employment (or cessation of Service Relationship) with the Company and its Affiliates for any reason.

SECTION 12. TRANSFERABILITY OF AWARDS

(a) Transferability. Except as provided in Section 12(b) below or otherwise determined by the Administrator, during a grantee's lifetime, his or her Awards shall be exercisable only by the grantee, or by the grantee's legal representative or guardian in the event of the grantee's incapacity. No Awards shall be sold, assigned, transferred or otherwise encumbered or disposed of by a grantee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order. No Awards shall be subject, in whole or in part, to attachment, execution, or levy of any kind, and any purported transfer in violation hereof shall be null and void.

(b) Administrator Action. Notwithstanding Section 12(a), the Administrator, in its discretion, may provide either in the Award Agreement regarding a given Award or by subsequent written approval that the grantee (who is an employee or Non-Employee Director) may transfer his or her Non-Qualified Stock Options to his or her immediate family members, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award Agreement. In no event may an Award be transferred by a grantee for value.

(c) Family Member. For purposes of Section 12(b), "family member" shall mean a grantee's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew,

mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the grantee's household (other than a tenant of the grantee), a trust in which these persons (or the grantee) have more than 50 percent of the beneficial interest, a foundation in which these persons (or the grantee) control the management of assets, and any other entity in which these persons (or the grantee) own more than 50 percent of the voting interests.

(d) Designation of Beneficiary. To the extent permitted by the Company and valid under applicable law, each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Administrator and shall not be effective until received by the Administrator. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate or legal heirs.

SECTION 13. TAX WITHHOLDING

(a) Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the grantee for tax purposes, pay to the Company or any applicable Affiliate, or make arrangements satisfactory to the Administrator regarding payment of, any U.S. and non-U.S. federal, state, or local taxes of any kind required by law to be withheld by the Company or any applicable Affiliate with respect to such income. The Company and its Affiliates shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee or to satisfy any applicable withholding obligations by any other method of withholding that the Company and its Affiliates deem appropriate. The Company's obligation to deliver evidence of book entry (or stock certificates) to any grantee is subject to and conditioned on tax withholding obligations being satisfied by the grantee.

(b) Payment in Stock. The Administrator may cause any tax withholding obligation of the Company or any applicable Affiliate to be satisfied, in whole or in part, by the Company withholding from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due; provided, however, that the amount withheld does not exceed the maximum statutory rate or such lesser amount as is necessary to avoid liability accounting treatment. For purposes of share withholding, the Fair Market Value of withheld shares shall be determined in the same manner as the value of Stock includible in income of the grantees. The Administrator may also require any tax withholding obligation of the Company or any applicable Affiliate to be satisfied, in whole or in part, by an arrangement whereby a certain number of shares of Stock issued pursuant to any Award are immediately sold and proceeds from such sale are remitted to the Company or any applicable Affiliate in an amount that would satisfy the withholding amount due.

SECTION 14. SECTION 409A AWARDS

Awards are intended to be exempt from Section 409A to the greatest extent possible and to otherwise comply with Section 409A. The Plan and all Awards shall be interpreted in accordance with such intent. To the extent that any Award is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A (a "409A Award"), the Award shall be subject to such additional rules and requirements as specified by the Administrator from time to time in order to comply with Section 409A. In this regard, if any amount under a 409A Award is payable upon a "separation from service" (within the meaning of Section 409A) to a grantee who is then considered a "specified employee" (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee's separation from service, or (ii) the grantee's death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. Further, the settlement of any 409A Award may not be accelerated except to the extent permitted by Section 409A. The Company makes no representation that any or all of the payments or benefits described in the

Plan will be exempt from or comply with Section 409A of the Code and makes no undertaking to preclude Section 409A of the Code from applying to any such payment. The grantee shall be solely responsible for the payment of any taxes and penalties incurred under Section 409A.

SECTION 15. TERMINATION OF SERVICE RELATIONSHIP, TRANSFER, LEAVE OF ABSENCE, ETC.

(a) Termination of Service Relationship. If the grantee's Service Relationship is with an Affiliate and such Affiliate ceases to be an Affiliate, the grantee shall be deemed to have terminated his or her Service Relationship for purposes of the Plan.

(b) For purposes of the Plan, the following events shall not be deemed a termination of a Service Relationship:

(i) a transfer to the Service Relationship of the Company from an Affiliate or from the Company to an Affiliate, or from one Affiliate to another; or

(ii) an approved leave of absence, if the employee's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

SECTION 16. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall materially and adversely affect rights under any outstanding Award without the holder's consent. The Administrator is specifically authorized to exercise its discretion, without the approval of the Company's stockholders and without the consent of any holder, to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and re-grants or cancellation of Stock Options or Stock Appreciation Rights in exchange for cash or other Awards. To the extent required under the rules of any securities exchange or market system on which the Stock is listed, or to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code, Plan amendments shall be subject to approval by Company stockholders. Nothing in this Section 16 shall limit the Administrator's authority to take any action permitted pursuant to Section 3(c) or 3(d).

SECTION 17. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

SECTION 18. GENERAL PROVISIONS

(a) No Distribution. The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

(b) Issuance of Stock. To the extent certificated, stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed

such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any evidence of book entry or certificates evidencing shares of Stock pursuant to the exercise or settlement of any Award, unless and until the Administrator has determined, with advice of counsel (to the extent the Administrator deems such advice necessary or advisable), that the issuance and delivery is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. Any Stock issued pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate or notations on any book entry to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Administrator may require that an individual make such reasonable covenants, agreements, and representations as the Administrator, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Administrator.

(c) Stockholder Rights. Until Stock is deemed delivered in accordance with Section 18(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

(d) Other Incentive Arrangements; No Rights to Continued Service Relationship. Nothing contained in this Plan shall prevent the Board from adopting other or additional incentive arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not confer upon any grantee any right to continued employment or other Service Relationship with the Company or any Affiliate.

(e) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policies and procedures, as in effect from time to time.

(f) Clawback Policy. Awards under the Plan shall be subject to the Company's clawback policy, as in effect from time to time. In addition, the Administrator may impose such other clawback, recovery, or recoupment provisions in an Award Agreement as the Administrator determines necessary or appropriate, including, but not limited to, a reacquisition right in respect of previously acquired shares of Stock or other cash or property upon the occurrence of a termination for "cause" under any agreement with the Company or an Affiliate thereof. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company or an Affiliate thereof.

(g) Fractional Shares. No fractional Shares shall be issued or delivered pursuant to the Plan or any Award, and the Administrator shall determine whether cash, other securities or other property shall be paid or transferred in lieu of any fractional Shares, or whether such fractional Shares or any rights thereto shall be canceled, terminated or otherwise eliminated.

SECTION 19. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon the Closing Date subject to stockholder approval in accordance with applicable state law, the Company's bylaws and articles of incorporation, and applicable stock exchange rules.

No grants of Awards may be made hereunder after the tenth anniversary of the Effective Date and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of the date the Plan is approved by the Board.

SECTION 20. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of Delaware applied without regard to conflict of law principles.

DATE APPROVED BY BOARD OF DIRECTORS:

DATE APPROVED BY STOCKHOLDERS:

Annex J

Q32 BIO INC.

2024 EMPLOYEE STOCK PURCHASE PLAN

The purpose of the Q32 Bio Inc. 2024 Employee Stock Purchase Plan (the "Plan") is to provide eligible employees of Q32 Bio Inc. (the "Company") and each Designated Company (as defined in Section 11) with opportunities to purchase shares of the Company's common stock, par value $0.0001 per share (the "Common Stock"). 2,175,095 shares of Common Stock in the aggregate have been approved and reserved for this purpose, plus on January 1, 2025 and each January 1 thereafter until the Plan terminates pursuant to Section 20, the number of shares of Common Stock reserved and available for issuance under the Plan shall be cumulatively increased by the lesser of (i) 4,350,190 shares of Common Stock, (ii) one percent (1%) of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31, or (iii) such lesser number of shares of Common Stock as determined by the Administrator (as defined in Section 1).

The Plan includes two components: a Code Section 423 Component (the "423 Component") and a non-Code Section 423 Component (the "Non-423 Component"). It is intended for the 423 Component to constitute an "employee stock purchase plan" within the meaning of Section 423(b) of the Internal Revenue Code of 1986, as amended (the "Code"), and the 423 Component shall be interpreted in accordance with that intent. Under the Non-423 Component, which does not qualify as an "employee stock purchase plan" within the meaning of Section 423(b) of the Code, options will be granted pursuant to rules, procedures or sub-plans adopted by the Administrator designed to comply with applicable laws or achieve tax and other objectives. Except as otherwise provided herein or by the Administrator, the Non-423 Component will operate and be administered in the same manner as the 423 Component.

Unless otherwise defined herein, capitalized terms in this Plan shall have the meaning ascribed to them in Section 11.

1. Administration. The Plan will be administered by the person or persons (the "Administrator") appointed by the Company's Board of Directors (the "Board") for such purpose. The Administrator has authority at any time to: (i) adopt, alter and repeal such rules, guidelines and practices for the administration of the Plan and for its own acts and proceedings as it shall deem advisable; (ii) interpret the terms and provisions of the Plan; (iii) make all determinations it deems advisable for the administration of the Plan, including to accommodate the specific requirements of applicable laws, regulations and procedures in jurisdictions outside the United States; (iv) decide all disputes arising in connection with the Plan; and (v) otherwise supervise the administration of the Plan. All interpretations and decisions of the Administrator shall be binding on all persons, including the Company and the Participants. No member of the Board or individual exercising administrative authority with respect to the Plan shall be liable for any action or determination made in good faith with respect to the Plan or any option granted hereunder.

2. Offerings. The Company may make one or more offerings to eligible employees to purchase Common Stock under the Plan ("Offerings") consisting of one or more Purchase Periods. The Administrator may, in its discretion, determine when each Offering shall occur, including the duration of any Offering, provided that no Offering shall exceed 27 months in duration. Unless as otherwise determined by the Administrator, Participants will only be permitted to participate in one Offering at a time.

3. Eligibility. Except as otherwise determined by the Administrator in advance of an Offering and, with respect to the 423 Component, consistent with the requirements of Section 423 of the Code, all individuals classified as employees on the payroll records of the Company and each Designated Company are eligible to participate in any one or more of the Offerings under the Plan (provided, that a Participant is not permitted to participate in multiple Offerings at the same time, unless otherwise determined by the Administrator), provided

that as of the first day of the applicable Offering (the "Offering Date"), they are customarily employed by the Company or a Designated Company for more than 20 hours a week. Notwithstanding any other provision herein, individuals who are not contemporaneously classified as employees of the Company or a Designated Company for purposes of the Company's or applicable Designated Company's payroll system are not considered to be eligible employees of the Company or any Designated Company and shall not be eligible to participate in the Plan. In the event any such individuals are reclassified as employees of the Company or a Designated Company for any purpose, including, without limitation, common law or statutory employees, by any action of any third party, including, without limitation, any government agency, or as a result of any private lawsuit, action or administrative proceeding, such individuals shall, notwithstanding such reclassification, remain ineligible for participation. Notwithstanding the foregoing, the exclusive means for individuals who are not contemporaneously classified as employees of the Company or a Designated Company on the Company's or Designated Company's payroll system to become eligible to participate in this Plan is through an amendment or subplan to this Plan, duly executed by the Company, which specifically renders such individuals eligible to participate herein.

4. Participation.

(a) An eligible employee who is not a Participant in any prior Offering may participate in a subsequent Offering by submitting an enrollment form to the Company or an agent designated by the Company (in the manner described in Section 4) at least 15 business days before the Offering Date (or by such other deadline as shall be established by the Administrator for the Offering).

(b) Enrollment. The enrollment form (which may be in an electronic format or such other method as determined by the Company in accordance with the Company's practices) will (a) state a whole percentage to be deducted from an eligible employee's Compensation (as defined in Section 11) per pay period, (b) authorize the purchase of Common Stock in each Offering in accordance with the terms of the Plan and (c) specify the exact name or names in which shares of Common Stock purchased for such individual are to be issued pursuant to Section 10. An employee who does not enroll in accordance with these procedures will be deemed to have waived the right to participate. Unless a Participant files a new enrollment form or withdraws from the Plan, such Participant's deductions or contributions and purchases will continue at the same percentage of Compensation for future Offerings, provided he or she remains eligible.

(c) Notwithstanding the foregoing, participation in the Plan will neither be permitted nor be denied contrary to the requirements of the Code.

5. Employee Contributions. Each eligible employee may authorize payroll deductions or contributions at a minimum of 1 percent (1%) up to a maximum of 15 percent (15%) of such employee's Compensation for each pay period or such other maximum as may be specified by the Administrator in advance of an Offering. The Company will maintain book accounts showing the amount of payroll deductions or contributions made by each Participant for each Purchase Period within an Offering. No interest will accrue or be paid on payroll deductions or contributions, except as may be required by applicable law. If payroll deductions or contributions for purposes of the Plan are prohibited or otherwise problematic under applicable law (as determined by the Administrator in its discretion), the Administrator may require Participants to contribute to the Plan by such other means as determined by the Administrator. Any reference to "payroll deductions or contributions" in this Section 5 (or in any other section of the Plan) will similarly cover contributions by other means made pursuant to this Section 5.

6. Deduction Changes. Except as may be determined by the Administrator in advance of an Offering, a Participant may not increase or decrease his or her payroll deduction or contributions during any Offering, but may increase or decrease his or her payroll deduction or contributions with respect to the next Offering (subject to the limitations of Section 5) by filing a new enrollment form at least 15 business days before the next Offering Date (or by such other deadline as shall be established by the Administrator for the Offering). The Administrator may, in advance of any Offering, establish rules permitting a Participant to increase, decrease or terminate his or her payroll deduction or contributions during an Offering.

7. Withdrawal. A Participant may withdraw from participation in the Plan by delivering a written notice of withdrawal to the Company or an agent designated by the Company (in accordance with such procedures as may be established by the Administrator). The Participant's withdrawal will be effective as of the next business day. Following a Participant's withdrawal, the Company will promptly refund such individual's entire account balance under the Plan to him or her (after payment for any Common Stock purchased before the effective date of withdrawal). Partial withdrawals are not permitted. Such an employee may not begin participation again during the remainder of the Offering, but may enroll in a subsequent Offering in accordance with Section 4.

8. Grant of Options. On each Offering Date, the Company will grant to each eligible employee who is then a Participant in the Plan an option ("Option") to purchase, on the last day of a Purchase Period (an "Exercise Date") and at the Option Price (as defined herein) hereinafter provided for, the lowest of (a) a number of shares of Common Stock determined by dividing such Participant's accumulated payroll deductions or contributions on such Exercise Date by the Option Price, (b) the number of shares of Common Stock determined by dividing $25,000 by the Fair Market Value of the Common Stock on the Offering Date for such Offering; or (c) such other lesser maximum number of shares as shall have been established by the Administrator in advance of the Offering; provided, however, that such Option shall be subject to the limitations set forth below. Each Participant's Option shall be exercisable only to the extent of such Participant's accumulated payroll deductions or contributions on the Exercise Date. The purchase price for each share purchased under each Option (the "Option Price") will be 85 percent (85%) of the Fair Market Value (as defined in Section 11) of the Common Stock on the Offering Date or the Exercise Date, whichever is less.

Notwithstanding the foregoing, no Participant may be granted an Option hereunder if such Participant, immediately after the Option was granted, would be treated as owning stock possessing 5 percent (5%) or more of the total combined voting power or value of all classes of stock of the Company or any Parent or Subsidiary (as defined in Section 11). For purposes of the preceding sentence, the attribution rules of Section 424(d) of the Code shall apply in determining the stock ownership of a Participant, and all stock which the Participant has a contractual right to purchase shall be treated as stock owned by the Participant. In addition, no Participant may be granted an Option which permits his or her rights to purchase stock under the Plan, and any other employee stock purchase plan of the Company and its Parents and Subsidiaries, to accrue at a rate which exceeds $25,000 of the Fair Market Value of the Common Stock (determined on the option grant date or dates) for each calendar year in which the Option is outstanding at any time. The purpose of the limitation in the preceding sentence is to comply with Section 423(b)(8) of the Code and shall be applied taking Options into account in the order in which they were granted.

9. Exercise of Option and Purchase of Shares. Each employee who continues to be a Participant in the Plan on an Exercise Date shall be deemed to have exercised his or her Option on such date and shall acquire from the Company such number of whole shares of Common Stock reserved for the purpose of the Plan as his or her accumulated payroll deductions or contributions on such date will purchase at the Option Price, subject to any other limitations contained in the Plan. Unless otherwise determined by the Administrator in advance of an Offering, any amount remaining in a Participant's account after the purchase of shares on an Exercise Date of an Offering solely by reason of the inability to purchase a fractional share will be carried forward to the next Purchase Period; provided, that if such Exercise Date is the final Exercise Date of an Offering, such amount will be carried forward to the next Offering and any other balance remaining in a Participant's account at the end of an Offering will be refunded to the Participant promptly.

10. Issuance of Certificates. Certificates or book-entries at the Company's transfer agent representing shares of Common Stock purchased under the Plan may be issued only in the name of the employee, in the name of the employee and another person of legal age as joint tenants with rights of survivorship, or in the name of a broker authorized by the employee to be his, her or their, nominee for such purpose.

11. Definitions.

The term "*Affiliate*" means any entity that, directly or indirectly through one or more intermediaries, controls, is controlled by or is under the common control with the Company.

The term "*Closing Date*" means the date of the closing (the "Closing") of the transactions contemplated by that certain Agreement and Plan of Merger by and among Homology Medicines, Inc., the Company and Kenobi Merger Sub, dated as of November 16, 2023.

The term "*Compensation*" means the amount of base pay, prior to salary reduction such as pursuant to Sections 125, 132(f) or 401(k) of the Code, but excluding overtime, commissions, incentive or bonus awards, allowances and reimbursements for expenses such as relocation allowances or travel expenses, income or gains related to Company stock options or other share-based awards, and similar items. The Administrator shall have the discretion to determine the application of this definition to Participants outside the United States.

The term "*Designated Company*" means any present or future Affiliate or Subsidiary that has been designated by the Administrator to participate in the Plan. The Administrator may so designate any Subsidiary or Affiliate, or revoke any such designation, at any time and from time to time, either before or after the Plan is approved by the stockholders, and may further designate such companies or Participants as participating in the 423 Component or the Non-423 Component. The Administrator may also determine which affiliates or eligible employees may be excluded from participation in the Plan, to the extent consistent with Section 423 of the Code or as implemented under the Non-423 Component, and determine which Designated Company or Companies will participate in separate Offerings (to the extent that the Company makes separate Offerings). For purposes of the 423 Component, only the Company and its Subsidiaries may be Designated Companies; provided, however, that at any given time, a Subsidiary that is a Designated Company under the 423 Component will not be a Designated Company under the Non-423 Component. The current list of Designated Companies is attached hereto as Appendix A.

The term "*Effective Date*" means the date on which the Plan becomes effective as set forth in Section 26.

The term "*Fair Market Value of the Common Stock*" on any given date means the fair market value of the Common Stock determined in good faith by the Administrator; provided, however, that if the Common Stock is listed on the National Association of Securities Dealers Automated Quotation System ("NASDAQ"), NASDAQ Global Market, The New York Stock Exchange or another national securities exchange or traded on any established market, the determination shall be made by reference to the closing price. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price.

The term "*New Exercise Date*" means a new Exercise Date if the Administrator shortens any Offering then in progress.

The term "*Parent*" means a "parent corporation" with respect to the Company, as defined in Section 424(e) of the Code.

The term "*Participant*" means an individual who is eligible as determined in Section 3 and who has complied with the provisions of Section 4.

The term "*Purchase Period*" means a period of time specified within an Offering beginning on the Offering Date or on the next day following an Exercise Date within an Offering and ending on an Exercise Date. An Offering may consist of one or more Purchase Periods.

The term "*Sale Event*" means (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization, statutory share exchange, consolidation, or similar transaction pursuant to which the holders of the Company's outstanding voting power

and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Common Stock to an unrelated person, entity or group thereof acting in concert, (iv) any other transaction in which the owners of the Company's outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company, or (v) the approval by the stockholders of the Company of a complete liquidation or dissolution of the Company.

The term "*Subsidiary*" means a "subsidiary corporation" with respect to the Company, as defined in Section 424(f) of the Code.

12. Rights on Termination or Transfer of Employment. If a Participant's employment terminates for any reason before the Exercise Date for any Offering, no payroll deduction or contributions will be taken from any pay due and owing to the Participant and the balance in the Participant's account will be paid to such Participant or, in the case of such Participant's death, if permitted by the Administrator and valid under applicable law, to his or her designated beneficiary or to the legal representative of his or her estate as if such Participant had withdrawn from the Plan under Section 7. An employee will be deemed to have terminated employment, for this purpose, if the corporation that employs him or her, having been a Designated Company, ceases to be a Subsidiary or Affiliate, or if the employee is transferred to any corporation other than the Company or a Designated Company. Unless otherwise determined by the Administrator, a Participant whose employment transfers between, or whose employment terminates with an immediate rehire (with no break in service) by, Designated Companies or a Designated Company and the Company will not be treated as having terminated employment for purposes of participating in the Plan or an Offering; provided, however, that if a Participant transfers from an Offering under the 423 Component to an Offering under the Non-423 Component, the exercise of the Participant's Option will be qualified under the 423 Component only to the extent that such exercise complies with Section 423 of the Code. If a Participant transfers from an Offering under the Non-423 Component to an Offering under the 423 Component, the exercise of the Participant's Option will remain non-qualified under the Non-423 Component. Further, an employee will not be deemed to have terminated employment for purposes of this Section 12, if the employee is on an approved leave of absence where the employee's right to reemployment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise provides in writing.

13. Special Rules and Sub-Plans. Notwithstanding anything herein to the contrary, the Administrator may adopt special rules or sub-plans applicable to the employees of a particular Designated Company, whenever the Administrator determines that such rules are necessary or appropriate for the implementation of the Plan in a jurisdiction where such Designated Company has employees, regarding, without limitation, eligibility to participate in the Plan, handling and making of payroll deductions or contributions by other means, establishment of bank or trust accounts to hold payroll deductions or contributions, payment of interest, conversion of local currency, obligation to pay payroll tax, withholding procedures and handling of share issuances, any of which may vary according to applicable requirements; provided that if such special rules or sub-plans are inconsistent with the requirements of Section 423(b) of the Code the employees subject to such special rules or sub-plans will participate in the Non-423 Component.

14. Optionees Not Stockholders. Neither the granting of an Option to a Participant nor the deductions or contributions from his or her pay shall result in such Participant becoming a holder of the shares of Common Stock covered by an Option under the Plan until such shares have been purchased by and issued to him or her.

15. Rights Not Transferable. Rights under the Plan are not transferable by a Participant other than by will or the laws of descent and distribution, and are exercisable during the Participant's lifetime only by the Participant.

16. Application of Funds. All funds received or held by the Company under the Plan may be combined with other corporate funds and may be used for any corporate purpose, unless otherwise required under applicable law.

17. Adjustment in Case of Changes Affecting Common Stock. In the event of a subdivision of outstanding shares of Common Stock, the payment of a dividend in Common Stock or any other change affecting the Common Stock, the number of shares approved for the Plan and the share limitation set forth in Section 8 shall be equitably or proportionately adjusted to give proper effect to such event. In the case of and subject to the consummation of a Sale Event, the Administrator, in its discretion, and on such terms and conditions as it deems appropriate, is hereby authorized to take any one or more of the following actions whenever the Administrator determines that such action is appropriate in order to prevent the dilution or enlargement of the benefits or potential benefits intended to be made available under the Plan or with respect to any right under the Plan or to facilitate such transactions or events:

(a) To provide for either (i) termination of any outstanding Option in exchange for an amount of cash, if any, equal to the amount that would have been obtained upon the exercise of such Option had such Option been currently exercisable or (ii) the replacement of such outstanding Option with other options or property selected by the Administrator in its sole discretion.

(b) To provide that the outstanding Options under the Plan shall be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for similar options covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and prices.

(c) To make adjustments in the number and type of shares of Common Stock (or other securities or property) subject to outstanding Options under the Plan and/or in the terms and conditions of outstanding Options and Options that may be granted in the future.

(d) To provide that the Offering with respect to which an Option relates will be shortened by setting a New Exercise Date on which such Offering will end. The New Exercise Date will occur before the date of the Sale Event. The Administrator will notify each Participant in writing or electronically prior to the New Exercise Date, that the Exercise Date for the Participant's Option has been changed to the New Exercise Date and that the Participant's Option will be exercised automatically on the New Exercise Date, unless prior to such date the Participant has withdrawn from the Offering as provided in Section 7 hereof.

(e) To provide that all outstanding Options shall terminate without being exercised and all amounts in the accounts of Participants shall be promptly refunded.

18. Amendment of the Plan. The Board may at any time and from time to time amend the Plan in any respect, except that, without the approval within 12 months of such Board action by the stockholders, no amendment shall be made increasing the number of shares approved for the 423 Component of the Plan or making any other change that would require stockholder approval in order for the Plan, as amended, to qualify as an "employee stock purchase plan" under Section 423(b) of the Code.

19. Insufficient Shares. If the total number of shares of Common Stock that would otherwise be purchased on any Exercise Date plus the number of shares purchased under previous Offerings under the Plan exceeds the maximum number of shares issuable under the Plan, the shares then available shall be apportioned among Participants in proportion to the amount of payroll deductions or contributions accumulated on behalf of each Participant that would otherwise be used to purchase Common Stock on such Exercise Date.

20. Termination of the Plan. The Plan may be terminated at any time by the Board. Upon termination of the Plan, all amounts in the accounts of Participants shall be promptly refunded. Unless terminated earlier, the Plan shall automatically terminate on the ten year anniversary of the Effective Date.

21. Compliance with Law. The Company's obligation to sell and deliver Common Stock under the Plan is subject to applicable laws and the completion of any registration or qualification of the Common Stock under any U.S. or non-U.S. local, state or federal securities or exchange control law, or under rulings or regulations of the SEC or of any other governmental regulatory body, and to obtaining any approval or other clearance from any U.S. and non-U.S. local, state or federal governmental agency, which registration, qualification or approval the Company shall, in its absolute discretion, deem necessary or advisable. The Company is under no obligation to register or qualify the Common Stock with the SEC or any other U.S. or non-U.S. securities commission or to seek approval or clearance from any governmental authority for the issuance or sale of such stock.

22. Governing Law. This Plan and all Options and actions taken thereunder shall be governed by, and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of Delaware applied without regard to conflict of law principles.

23. Issuance of Shares. Shares may be issued upon exercise of an Option from authorized but unissued Common Stock, from shares held in the treasury of the Company, or from any other proper source.

24. Tax Withholding. Participation in the Plan is subject to any applicable U.S. and non-U.S. federal, state or local tax withholding requirements on income the Participant realizes in connection with the Plan. Each Participant agrees, by entering the Plan, that the Company or any Subsidiary or Affiliate may withhold from a Participant's wages, salary or other compensation at any time the amount necessary for the Company or any Subsidiary or Affiliate to meet applicable withholding obligations, including any withholding required to make available to the Company or any Subsidiary or Affiliate any tax deductions or benefits attributable to the sale or disposition of Common Stock by such Participant. In addition, the Company or any Subsidiary or Affiliate may withhold from the proceeds of the sale of Common Stock or use any other method of withholding that the Company or any Subsidiary or Affiliate deems appropriate to the extent permitted by U.S. Treasury Regulation Section 1.423-2(f) with respect to the 423 Component. The Company will not be required to issue any Common Stock under the Plan until such obligations are satisfied.

25. Notification Upon Sale of Shares under the 423 Component. Each Participant agrees, by entering the 423 Component of the Plan, to give the Company prompt notice of any disposition of shares purchased under the Plan where such disposition occurs within two years after the date of grant of the Option pursuant to which such shares were purchased or within one year after the date such shares were purchased.

26. Effective Date and Approval of Stockholders. The Plan shall take effect on the Closing Date subject to approval by the holders of a majority of the votes cast at a meeting of stockholders at which a quorum is present or by written consent of the stockholders.

27. Equal Rights and Privileges. Notwithstanding any provision of the Plan to the contrary and in accordance with Section 423 of the Code for the 423 Component of the Plan, all eligible employees who are granted options under the Plan shall have the same rights and privileges.

28. No Right to Continued Service. Neither the Plan nor any compensation paid hereunder will confer on any Participant the right to continue as an employee or in any other capacity.

29. Entire Plan. This Plan constitutes the entire plan with respect to the subject matter hereof and supersedes all prior plans with respect to the subject matter hereof.

DATE APPROVED BY BOARD OF DIRECTORS:

DATE APPROVED BY STOCKHOLDERS:

APPENDIX A

Designated Companies

Annex K

SECTION 262 OF THE DELAWARE GENERAL CORPORATION LAW

§262 Appraisal rights.

(a) Any stockholder of a corporation of this state who holds shares of stock on the date of the making of a demand pursuant to subsection (d) of this section with respect to such shares, who continuously holds such shares through the effective date of the merger or consolidation, who has otherwise complied with subsection (d) of this section and who has neither voted in favor of the merger or consolidation nor consented thereto in writing pursuant to § 228 of this title shall be entitled to an appraisal by the Court of Chancery of the fair value of the stockholder's shares of stock under the circumstances described in subsections (b) and (c) of this section. As used in this section, the word "stockholder" means a holder of record of stock in a corporation; the words "stock" and "share" mean and include what is ordinarily meant by those words; and the words "depository receipt" mean a receipt or other instrument issued by a depository representing an interest in 1 or more shares, or fractions thereof, solely of stock of a corporation, which stock is deposited with the depository.

(b) Appraisal rights shall be available for the shares of any class or series of stock of a constituent corporation in a merger or consolidation to be effected pursuant to § 251 (other than a merger effected pursuant to § 251(g) of this title), § 252, § 254, § 255, § 256, § 257, § 258, § 263 or § 264 of this title:

(1) Provided, however, that, except as expressly provided in § 363(b) of this title, no appraisal rights under this section shall be available for the shares of any class or series of stock, which stock, or depository receipts in respect thereof, at the record date fixed to determine the stockholders entitled to receive notice of the meeting of stockholders to act upon the agreement of merger or consolidation (or, in the case of a merger pursuant to § 251(h), as of immediately prior to the execution of the agreement of merger), were either: (i) listed on a national securities exchange or (ii) held of record by more than 2,000 holders; and further provided that no appraisal rights shall be available for any shares of stock of the constituent corporation surviving a merger if the merger did not require for its approval the vote of the stockholders of the surviving corporation as provided in § 251(f) of this title.

(2) Notwithstanding paragraph (b)(1) of this section, appraisal rights under this section shall be available for the shares of any class or series of stock of a constituent corporation if the holders thereof are required by the terms of an agreement of merger or consolidation pursuant to §§ 251, 252, 254, 255, 256, 257, 258, 263 and 264 of this title to accept for such stock anything except:

a. Shares of stock of the corporation surviving or resulting from such merger or consolidation, or depository receipts in respect thereof;

b. Shares of stock of any other corporation, or depository receipts in respect thereof, which shares of stock (or depository receipts in respect thereof) or depository receipts at the effective date of the merger or consolidation will be either listed on a national securities exchange or held of record by more than 2,000 holders;

c. Cash in lieu of fractional shares or fractional depository receipts described in the foregoing paragraphs (b)(2)a. and b. of this section; or

d. Any combination of the shares of stock, depository receipts and cash in lieu of fractional shares or fractional depository receipts described in the foregoing paragraphs (b)(2)a., b. and c. of this section.

(3) In the event all of the stock of a subsidiary Delaware corporation party to a merger effected under § 253 or § 267 of this title is not owned by the parent immediately prior to the merger, appraisal rights shall be available for the shares of the subsidiary Delaware corporation.

(4) In the event of an amendment to a corporation's certificate of incorporation contemplated by § 363(a) of this title, appraisal rights shall be available as contemplated by § 363(b) of this title, and the procedures of this section, including those set forth in subsections (d) and (e) of this section, shall apply as nearly as practicable, with the word "amendment" substituted for the words "merger or consolidation," and the word "corporation" substituted for the words "constituent corporation" and/or "surviving or resulting corporation."

(c) Any corporation may provide in its certificate of incorporation that appraisal rights under this section shall be available for the shares of any class or series of its stock as a result of an amendment to its certificate of incorporation, any merger or consolidation in which the corporation is a constituent corporation or the sale of all or substantially all of the assets of the corporation. If the certificate of incorporation contains such a provision, the provisions of this section, including those set forth in subsections (d),(e), and (g) of this section, shall apply as nearly as is practicable.

(d) Appraisal rights shall be perfected as follows:

(1) If a proposed merger or consolidation for which appraisal rights are provided under this section is to be submitted for approval at a meeting of stockholders, the corporation, not less than 20 days prior to the meeting, shall notify each of its stockholders who was such on the record date for notice of such meeting (or such members who received notice in accordance with § 255(c) of this title) with respect to shares for which appraisal rights are available pursuant to subsection (b) or (c) of this section that appraisal rights are available for any or all of the shares of the constituent corporations, and shall include in such notice a copy of this section and, if 1 of the constituent corporations is a nonstock corporation, a copy of § 114 of this title. Each stockholder electing to demand the appraisal of such stockholder's shares shall deliver to the corporation, before the taking of the vote on the merger or consolidation, a written demand for appraisal of such stockholder's shares; provided that a demand may be delivered to the corporation by electronic transmission if directed to an information processing system (if any) expressly designated for that purpose in such notice. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such stockholder's shares. A proxy or vote against the merger or consolidation shall not constitute such a demand. A stockholder electing to take such action must do so by a separate written demand as herein provided. Within 10 days after the effective date of such merger or consolidation, the surviving or resulting corporation shall notify each stockholder of each constituent corporation who has complied with this subsection and has not voted in favor of or consented to the merger or consolidation of the date that the merger or consolidation has become effective; or

(2) If the merger or consolidation was approved pursuant to § 228, § 251(h), § 253, or § 267 of this title, then either a constituent corporation before the effective date of the merger or consolidation or the surviving or resulting corporation within 10 days thereafter shall notify each of the holders of any class or series of stock of such constituent corporation who are entitled to appraisal rights of the approval of the merger or consolidation and that appraisal rights are available for any or all shares of such class or series of stock of such constituent corporation, and shall include in such notice a copy of this section and, if 1 of the constituent corporations is a nonstock corporation, a copy of § 114 of this title. Such notice may, and, if given on or after the effective date of the merger or consolidation, shall, also notify such stockholders of the effective date of the merger or consolidation. Any stockholder entitled to appraisal rights may, within 20 days after the date of giving such notice or, in the case of a merger approved pursuant to § 251(h) of this title, within the later of the consummation of the offer contemplated by § 251(h) of this title and 20 days after the date of giving such notice, demand in writing from the surviving or resulting corporation the appraisal of such holder's shares; provided that a demand may be delivered to the corporation by electronic transmission if directed to an information processing system (if any) expressly designated for that purpose in such notice. Such demand will be sufficient if it reasonably informs the corporation of the identity of the stockholder and that the stockholder intends thereby to demand the appraisal of such holder's shares. If such notice did not notify stockholders of the effective date of the merger or consolidation, either (i) each such constituent corporation shall send a second notice before the effective date of the merger or consolidation notifying each of the holders of any class or series of stock of such constituent

corporation that are entitled to appraisal rights of the effective date of the merger or consolidation or (ii) the surviving or resulting corporation shall send such a second notice to all such holders on or within 10 days after such effective date; provided, however, that if such second notice is sent more than 20 days following the sending of the first notice or, in the case of a merger approved pursuant to § 251(h) of this title, later than the later of the consummation of the offer contemplated by § 251(h) of this title and 20 days following the sending of the first notice, such second notice need only be sent to each stockholder who is entitled to appraisal rights and who has demanded appraisal of such holder's shares in accordance with this subsection. An affidavit of the secretary or assistant secretary or of the transfer agent of the corporation that is required to give either notice that such notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein. For purposes of determining the stockholders entitled to receive either notice, each constituent corporation may fix, in advance, a record date that shall be not more than 10 days prior to the date the notice is given, provided, that if the notice is given on or after the effective date of the merger or consolidation, the record date shall be such effective date. If no record date is fixed and the notice is given prior to the effective date, the record date shall be the close of business on the day next preceding the day on which the notice is given.

(e) Within 120 days after the effective date of the merger or consolidation, the surviving or resulting corporation or any stockholder who has complied with subsections (a) and (d) of this section hereof and who is otherwise entitled to appraisal rights, may commence an appraisal proceeding by filing a petition in the Court of Chancery demanding a determination of the value of the stock of all such stockholders. Notwithstanding the foregoing, at any time within 60 days after the effective date of the merger or consolidation, any stockholder who has not commenced an appraisal proceeding or joined that proceeding as a named party shall have the right to withdraw such stockholder's demand for appraisal and to accept the terms offered upon the merger or consolidation. Within 120 days after the effective date of the merger or consolidation, any stockholder who has complied with the requirements of subsections (a) and (d) of this section hereof, upon request given in writing (or by electronic transmission directed to an information processing system (if any) expressly designated for that purpose in the notice of appraisal), shall be entitled to receive from the corporation surviving the merger or resulting from the consolidation a statement setting forth the aggregate number of shares not voted in favor of the merger or consolidation (or, in the case of a merger approved pursuant to § 251(h) of this title, the aggregate number of shares (other than any excluded stock (as defined in § 251(h)(6)d. of this title)) that were the subject of, and were not tendered into, and accepted for purchase or exchange in, the offer referred to in § 251(h)(2)), and, in either case, with respect to which demands for appraisal have been received and the aggregate number of holders of such shares. Such statement shall be given to the stockholder within 10 days after such stockholder's request for such a statement is received by the surviving or resulting corporation or within 10 days after expiration of the period for delivery of demands for appraisal under subsection (d) of this section hereof, whichever is later. Notwithstanding subsection (a) of this section, a person who is the beneficial owner of shares of such stock held either in a voting trust or by a nominee on behalf of such person may, in such person's own name, file a petition or request from the corporation the statement described in this subsection.

(f) Upon the filing of any such petition by a stockholder, service of a copy thereof shall be made upon the surviving or resulting corporation, which shall within 20 days after such service file in the office of the Register in Chancery in which the petition was filed a duly verified list containing the names and addresses of all stockholders who have demanded payment for their shares and with whom agreements as to the value of their shares have not been reached by the surviving or resulting corporation. If the petition shall be filed by the surviving or resulting corporation, the petition shall be accompanied by such a duly verified list. The Register in Chancery, if so ordered by the Court, shall give notice of the time and place fixed for the hearing of such petition by registered or certified mail to the surviving or resulting corporation and to the stockholders shown on the list at the addresses therein stated. Such notice shall also be given by 1 or more publications at least 1 week before the day of the hearing, in a newspaper of general circulation published in the City of Wilmington, Delaware or such publication as the Court deems advisable. The forms of the notices by mail and by publication shall be approved by the Court, and the costs thereof shall be borne by the surviving or resulting corporation.

(g) At the hearing on such petition, the Court shall determine the stockholders who have complied with this section and who have become entitled to appraisal rights. The Court may require the stockholders who have demanded an appraisal for their shares and who hold stock represented by certificates to submit their certificates of stock to the Register in Chancery for notation thereon of the pendency of the appraisal proceedings; and if any stockholder fails to comply with such direction, the Court may dismiss the proceedings as to such stockholder. If immediately before the merger or consolidation the shares of the class or series of stock of the constituent corporation as to which appraisal rights are available were listed on a national securities exchange, the Court shall dismiss the proceedings as to all holders of such shares who are otherwise entitled to appraisal rights unless (1) the total number of shares entitled to appraisal exceeds 1% of the outstanding shares of the class or series eligible for appraisal, (2) the value of the consideration provided in the merger or consolidation for such total number of shares exceeds $1 million, or (3) the merger was approved pursuant to § 253 or § 267 of this title.

(h) After the Court determines the stockholders entitled to an appraisal, the appraisal proceeding shall be conducted in accordance with the rules of the Court of Chancery, including any rules specifically governing appraisal proceedings. Through such proceeding the Court shall determine the fair value of the shares exclusive of any element of value arising from the accomplishment or expectation of the merger or consolidation, together with interest, if any, to be paid upon the amount determined to be the fair value. In determining such fair value, the Court shall take into account all relevant factors. Unless the Court in its discretion determines otherwise for good cause shown, and except as provided in this subsection, interest from the effective date of the merger through the date of payment of the judgment shall be compounded quarterly and shall accrue at 5% over the Federal Reserve discount rate (including any surcharge) as established from time to time during the period between the effective date of the merger and the date of payment of the judgment. At any time before the entry of judgment in the proceedings, the surviving corporation may pay to each stockholder entitled to appraisal an amount in cash, in which case interest shall accrue thereafter as provided herein only upon the sum of (1) the difference, if any, between the amount so paid and the fair value of the shares as determined by the Court, and (2) interest theretofore accrued, unless paid at that time. Upon application by the surviving or resulting corporation or by any stockholder entitled to participate in the appraisal proceeding, the Court may, in its discretion, proceed to trial upon the appraisal prior to the final determination of the stockholders entitled to an appraisal. Any stockholder whose name appears on the list filed by the surviving or resulting corporation pursuant to subsection (f) of this section and who has submitted such stockholder's certificates of stock to the Register in Chancery, if such is required, may participate fully in all proceedings until it is finally determined that such stockholder is not entitled to appraisal rights under this section.

(i) The Court shall direct the payment of the fair value of the shares, together with interest, if any, by the surviving or resulting corporation to the stockholders entitled thereto. Payment shall be so made to each such stockholder, in the case of holders of uncertificated stock forthwith, and the case of holders of shares represented by certificates upon the surrender to the corporation of the certificates representing such stock. The Court's decree may be enforced as other decrees in the Court of Chancery may be enforced, whether such surviving or resulting corporation be a corporation of this State or of any state.

(j) The costs of the proceeding may be determined by the Court and taxed upon the parties as the Court deems equitable in the circumstances. Upon application of a stockholder, the Court may order all or a portion of the expenses incurred by any stockholder in connection with the appraisal proceeding, including, without limitation, reasonable attorney's fees and the fees and expenses of experts, to be charged pro rata against the value of all the shares entitled to an appraisal.

(k) From and after the effective date of the merger or consolidation, no stockholder who has demanded appraisal rights as provided in subsection (d) of this section shall be entitled to vote such stock for any purpose or to receive payment of dividends or other distributions on the stock (except dividends or other distributions payable to stockholders of record at a date which is prior to the effective date of the merger or consolidation); provided, however, that if no petition for an appraisal shall be filed within the time provided in subsection (e) of this section, or if such stockholder shall deliver to the surviving or resulting corporation a written withdrawal of

such stockholder's demand for an appraisal and an acceptance of the merger or consolidation, either within 60 days after the effective date of the merger or consolidation as provided in subsection (e) of this section or thereafter with the written approval of the corporation, then the right of such stockholder to an appraisal shall cease. Notwithstanding the foregoing, no appraisal proceeding in the Court of Chancery shall be dismissed as to any stockholder without the approval of the Court, and such approval may be conditioned upon such terms as the Court deems just; provided, however that this provision shall not affect the right of any stockholder who has not commenced an appraisal proceeding or joined that proceeding as a named party to withdraw such stockholder's demand for appraisal and to accept the terms offered upon the merger or consolidation within 60 days after the effective date of the merger or consolidation, as set forth in subsection (e) of this section.

(l) The shares of the surviving or resulting corporation to which the shares of such objecting stockholders would have been converted had they assented to the merger or consolidation shall have the status of authorized and unissued shares of the surviving or resulting corporation.