
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13D

Under the Securities Exchange Act of 1934

Q32 Bio Inc.

(Name of Issuer)

COMMON STOCK

(Title of Class of Securities)

746964105

(CUSIP Number)

**OrbiMed Advisors LLC
OrbiMed Capital GP VII LLC**

**601 Lexington Avenue, 54th Floor
New York, NY 10022
Telephone: (212) 739-6400**

(Name, Address and Telephone Number of Person Authorized to
Receive Notices and Communications)

March 26, 2024

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7(b) for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a Reporting Person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 746964105

1	Names of Reporting Persons. OrbiMed Advisors LLC	
2	Check the Appropriate Box if a Member of a Group (See Instructions). (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) AF	
5	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6	Citizenship or Place of Organization Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 2,252,987
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 2,252,987
11	Aggregate Amount Beneficially Owned by Each Reporting Person 2,252,987	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13	Percent of Class Represented by Amount in Row (11) 18.9%*	
14	Type of Reporting Person (See Instructions) IA	

* This percentage is calculated based upon 11,929,528 outstanding shares of common stock, par value \$0.0001 per share, of Q32 Bio Inc. (the "Issuer"), as set forth in the Issuer's Current Report on Form 8-K filed with the Securities and Exchange Commission on March 27, 2024.

CUSIP No. 746964105

1	Names of Reporting Persons. OrbiMed Capital GP VII LLC	
2	Check the Appropriate Box if a Member of a Group (See Instructions). (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) AF	
5	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6	Citizenship or Place of Organization Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 2,252,987
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 2,252,987
11	Aggregate Amount Beneficially Owned by Each Reporting Person 2,252,987	
12	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13	Percent of Class Represented by Amount in Row (11) 18.9%*	
14	Type of Reporting Person (See Instructions) OO	

* This percentage is calculated based upon 11,929,528 outstanding shares of common stock, par value \$0.0001 per share, of Q32 Bio Inc. (the "Issuer"), as set forth in the Issuer's Current Report on Form 8-K filed with the Securities and Exchange Commission on March 27, 2024.

Item 1. Security and Issuer

This Statement on Schedule 13D (this “Statement”) relates to the common stock, par value \$0.0001 per share (the “Shares”), of Q32 Bio Inc., a corporation organized under the laws of Delaware (the “Issuer”), with its principal executive offices located at 830 Winter Street, Waltham, MA 02451. The Shares are listed on the NASDAQ Capital Market under the ticker symbol “QTTB”. Information given in response to each item shall be deemed incorporated by reference in all other items, as applicable.

As more particularly described in Item 3 below, on March 25, 2024, the Issuer consummated its merger (the “Merger”) with Homology Medicines, Inc. (“Homology”) 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 wholly owned subsidiary of Homology, and the Issuer (the “Merger Agreement”). Effective March 26, 2024, the Issuer’s Shares began trading on The Nasdaq Capital Market on a post-Merger basis.

Item 2. Identity and Background

(a) This Statement is being filed by OrbiMed Advisors LLC (“OrbiMed Advisors”) and OrbiMed Capital GP VII LLC (“OrbiMed GP”) (collectively, the “Reporting Persons”).

(b) — (c), (f) OrbiMed Advisors, a limited liability company organized under the laws of Delaware and a registered investment adviser under the Investment Advisers Act of 1940, as amended, is the managing member of OrbiMed GP, as more particularly described in Item 6 below. OrbiMed Advisors has its principal offices at 601 Lexington Avenue, 54th Floor, New York, New York 10022.

OrbiMed GP, a limited liability company organized under the laws of Delaware, is the general partner of OrbiMed Private Investments VII, LP (“OPI VII”), a limited partnership organized under the laws of Delaware, as more particularly described in Item 6 below. OrbiMed GP has its principal offices at 601 Lexington Avenue, 54th Floor, New York, New York 10022.

The directors and executive officers of OrbiMed Advisors and OrbiMed GP are set forth on Schedules I and II, respectively, attached hereto. Schedules I and II set forth the following information with respect to each such person:

- (i) name;
- (ii) business address;
- (iii) present principal occupation of employment and the name, principal business and address of any corporation or other organization in which such employment is conducted; and
- (iv) citizenship.

(d) — (e) During the last five years, neither the Reporting Persons nor any Person named in Schedules I, II, III, and IV has been (i) convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

On or about July 26, 2018, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase 4,146,341 shares of Series A Preferred Stock of Admirx, Inc., which changed its name to Q32 Bio Inc. on March 20, 2020, which later changed its name to Q32 Bio Operations Inc. and became a wholly owned subsidiary of the Issuer (“Legacy Q32”).

On or about August 20, 2019, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase 1,243,902 shares of Series A Preferred Stock of Legacy Q32.

On or about August 20, 2019, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase 11,609,757 shares of Series A Preferred Stock of Legacy Q32.

On or about August 31, 2020, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase 9,114,939 shares of Series B Preferred Stock of Legacy Q32.

On or about December 3, 2021, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase 4,557,469 shares of Series B Preferred Stock of Legacy Q32.

On or about May 20, 2022, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase convertible notes, which as of the consummation of the Merger were convertible into 2,481,836 Shares (inclusive of interest and accrued interest).

On or about December 23, 2022, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to purchase convertible notes, which as of the consummation of the Merger were convertible into 4,963,672 Shares (inclusive of interest and accrued interest).

On November 16, 2023, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreement of OPI VII, as more particularly described in Item 6 below, caused OPI VII to enter into a Subscription Agreement (the "Subscription Agreement") with Legacy Q32 pursuant to which immediately prior to the consummation of the Merger, OPI VII purchased 8,852,000 Shares (the "Pre-Closing Financing").

Immediately prior to the consummation of the Merger, all shares of Legacy Q32's preferred stock including its Series A Preferred Stock and Series B Preferred Stock, converted into shares of Legacy Q32's common stock and all of Legacy Q32's convertible notes converted into shares of Legacy Q32's common stock at 90% of the convertible note's purchase price. Additionally, immediately prior to the consummation of the Merger, the Issuer effected a reverse stock split at a ratio of 1:18 (the "Stock Split"). Upon the consummation of the Merger, all shares of Legacy Q32's common stock were converted into Shares based on an exchange ratio of 0.0480.

The source of funds for such purchases was the working capital of OPI VII.

At the Closing, and after giving effect to the Stock Split, OPI VII received 2,252,987 Shares. OrbiMed Advisors, as the managing member of OrbiMed GP, may be deemed to be the beneficial owner of approximately 18.9% of the outstanding Shares following the consummation of the Merger.

Item 4. Purpose of Transaction

The Reporting Persons from time to time intend to review their investment in the Issuer on the basis of various factors, including the Issuer's business, financial condition, results of operations and prospects, general economic and industry conditions, the securities markets in general and those for the Issuer's Shares in particular, as well as other developments and other investment opportunities. Based upon such review, the Reporting Persons will take such actions in the future as the Reporting Persons may deem appropriate in light of the circumstances existing from time to time. If the Reporting Persons believe that further investment in the Issuer is attractive, whether because of the market price of Shares or otherwise, they may acquire Shares or other securities of the Issuer either in the open market or in privately negotiated transactions. Similarly, depending on market and other factors, the Reporting Persons may determine to dispose of some or all of the Shares currently owned by the Reporting Persons or otherwise acquired by the Reporting Persons either in the open market or in privately negotiated transactions.

Except as set forth in this Schedule 13D, the Reporting Persons have not formulated any plans or proposals which relate to or would result in: (a) the acquisition by any person of additional securities of the Issuer or the disposition of securities of the Issuer, (b) an extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries, (c) a sale or transfer of a material amount of the assets of the Issuer or any of its subsidiaries, (d) any change in the present Board of Directors or management of the Issuer, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board, (e) any material change in the Issuer's capitalization or dividend policy of the Issuer, (f) any other material change in the Issuer's business or corporate structure, (g) any change in the Issuer's charter or bylaws or other instrument corresponding thereto or other action which may impede the acquisition of control of the Issuer by any person, (h) causing a class of the Issuer's securities to be deregistered or delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association, (i) a class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Act or (j) any action similar to any of those enumerated above.

Item 5. Interest in Securities of the Issuer

(a) — (b) The following disclosure is based upon 11,929,528 outstanding Shares, as set forth in the Issuer's Current Report on Form 8-K filed with the SEC on March 27, 2024.

As of the date of this filing, OPI VII holds 2,252,987 Shares constituting approximately 18.9% of the issued and outstanding Shares. OrbiMed GP is the general partner of OPI VII pursuant to the terms of the limited partnership agreement of OPI VII, and OrbiMed Advisors is the managing member of OrbiMed GP pursuant to the terms of the limited liability company agreement of OrbiMed GP. As a result, OrbiMed Advisors and OrbiMed GP share power to direct the vote and disposition of the Shares held by OPI VII and may be deemed directly or indirectly, including by reason of their mutual affiliation, to be the beneficial owners of the Shares held by OPI VII. OrbiMed Advisors exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho, and W. Carter Neild, each of whom disclaims beneficial ownership of the Shares held by OPI VII.

In addition, OrbiMed Advisors and OrbiMed GP, pursuant to their authority under the limited partnership agreements of OPI VII, caused OPI VII to enter into the agreements referred to in Item 6 below.

(c) Except as disclosed in Item 3, the Reporting Persons have not effected any transactions during the past sixty (60) days in any Shares.

(d) Not applicable.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

In addition to the relationships between the Reporting Persons described in Items 2 and 5 above, OrbiMed GP is the general partner of OPI VII pursuant to the terms of the limited partnership agreement of OPI VII. Pursuant to this agreement and relationship, OrbiMed GP has discretionary investment management authority with respect to the assets of OPI VII. Such authority includes the power to vote and otherwise dispose of securities held by OPI VII. The number of outstanding Shares of the Issuer attributable to OPI VII is 2,252,987. OrbiMed GP, pursuant to its authority under the limited partnership agreement of OPI VII, may be considered to hold indirectly 2,252,987 Shares.

OrbiMed Advisors is the managing member of OrbiMed GP pursuant to the terms of the limited liability company agreement of OrbiMed GP. Pursuant to this agreement and relationship, OrbiMed Advisors and OrbiMed GP have discretionary investment management authority with respect to the assets of OPI VII. Such authority includes the power of OrbiMed GP to vote and otherwise dispose of securities held by OPI VII. The number of outstanding Shares attributable to OPI VII is 2,252,987 Shares. OrbiMed Advisors, pursuant to its authority under the terms of the limited liability company agreement of OrbiMed GP, may also be considered to hold indirectly 2,252,987 Shares.

Diyong Xu (“Xu”), an employee of OrbiMed Advisors, is a member of the Board of Directors of the Issuer and, accordingly, OrbiMed Advisors and OrbiMed GP may have the ability to affect and influence control of the Issuer. From time to time, Xu may receive stock options or other awards of equity-based compensation pursuant to the Issuer’s compensation arrangements for non-employee directors. Pursuant to an agreement with OrbiMed Advisors and OrbiMed GP, Xu is obligated to transfer any securities issued under any such stock options or other awards, or the economic benefit thereof, to OrbiMed Advisors and OrbiMed GP, which will in turn ensure that such securities or economic benefits are provided to OPI VII.

Registration Rights Agreement

Pursuant to the Subscription Agreement, on March 25, 2024, Legacy Q32 and the investors in the Pre-Closing Financing, including OPI VII entered into a registration rights agreement (the “Registration Rights Agreement”). Pursuant to the Registration Rights Agreement, among other things, Legacy Q32 agreed to register for resale certain shares of its common stock held by such investors from time to time, including Shares issued in the Merger in exchange for the shares of Legacy Q32 common stock issued in the Pre-Closing Financing.

Pursuant to the Registration Rights Agreement, the Issuer is obligated to prepare and file a shelf registration statement covering the resale of covered Shares within 45 calendar days following the closing of the Merger, subject to certain exceptions, pursuant to Rule 415 of the Securities Act of 1933, as amended (the “Securities Act”). The Issuer also agreed to use its reasonable best efforts to keep such registration statement continuously effective under the Securities Act until the earlier of the date that all registrable securities covered by such registration statement (i) have been sold, thereunder or pursuant to Rule 144 of the Securities Act or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 of the Securities Act and without the requirement for the Issuer to be in compliance with the current public information requirement under Rule 144 of the Securities Act. The Registration Rights Agreement also provides that the Issuer will pay certain expenses of the securityholders and indemnify the applicable securityholders against certain liabilities.

Lock-Up Agreement

In connection with the closing of the Merger, the Issuer entered into lock-up agreements with certain of its stockholders, directors and executive officers, including OPI VII and Xu, which restrict the transfer of Shares (other than any Shares acquired in the Pre-closing Financing) for a period of 180 days following the closing date of the Merger, subject to certain limited exceptions.

Item 7. Material to Be Filed as Exhibits

Exhibit	Description
1.	Joint Filing Agreement among OrbiMed Advisors LLC and OrbiMed Capital GP VII LLC
2.	Registration Rights Agreement, dated March 25, 2024, by and among Q32 Bio Operations Inc. (formerly Q32 Bio Inc.) and certain parties thereto (incorporated by reference to Exhibit 10.2 to the Issuer’s Form 8-K filed with the SEC on March 27, 2024 (File No. 001-38433)).
3.	Form of Lock-Up Agreement (incorporated by reference to Exhibit 10.3 to the Issuer’s Form 8-K filed with the SEC on March 27, 2024 (File No. 001-38433)).

Signature

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: March 28, 2024

ORBIMED ADVISORS LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

ORBIMED CAPITAL GP VII LLC

By: ORBIMED ADVISORS LLC, its managing member

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member of OrbiMed Advisors LLC

SCHEDULE I

The names and present principal occupations of each of the executive officers and directors of OrbiMed Advisors LLC are set forth below. Unless otherwise noted, each of these persons is a United States citizen and has a business address of 601 Lexington Avenue, 54th Floor, New York, NY 10022.

<u>Name</u>	<u>Position with Reporting Person</u>	<u>Principal Occupation</u>
Carl L. Gordon	Member	Member OrbiMed Advisors LLC
Sven H. Borho German and Swedish Citizen	Member	Member OrbiMed Advisors LLC
W. Carter Neild	Member	Member OrbiMed Advisors LLC
Geoffrey C. Hsu	Member	Member OrbiMed Advisors LLC
C. Scotland Stevens	Member	Member OrbiMed Advisors LLC
David P. Bonita	Member	Member OrbiMed Advisors LLC
Peter A. Thompson	Member	Member OrbiMed Advisors LLC
Matthew S. Rizzo	Member	Member OrbiMed Advisors LLC
Trey Block	Chief Financial Officer	Chief Financial Officer OrbiMed Advisors LLC

SCHEDULE II

The business and operations of OrbiMed Capital GP VII LLC are managed by the executive officers and directors of its managing member, OrbiMed Advisors LLC, set forth in Schedule I attached hereto.

EXHIBIT INDEX

Exhibit	Description
1.	Joint Filing Agreement among OrbiMed Advisors LLC and OrbiMed Capital GP VII LLC.
2.	Registration Rights Agreement, dated March 25, 2024, by and among Q32 Bio Operations Inc. (formerly Q32 Bio Inc.) and certain parties thereto (incorporated by reference to Exhibit 10.2 to the Issuer's Form 8-K filed with the SEC on March 27, 2024 (File No. 001-38433)).
3.	Form of Lock-Up Agreement (incorporated by reference to Exhibit 10.3 to the Issuer's Form 8-K filed with the SEC on March 27, 2024 (File No. 001-38433)).

JOINT FILING AGREEMENT

The undersigned hereby agree that the Statement on Schedule 13D, dated March 26, 2024, with respect to the common stock, par value \$0.0001 per share, of Q32 Bio Inc. is filed on behalf of each of us pursuant to and in accordance with the provisions of Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended. Each of the undersigned agrees to be responsible for the timely filing of this Statement, and for the completeness and accuracy of the information concerning itself contained therein. This Joint Filing Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the undersigned have executed this Joint Filing Agreement as of the 28th day of March 2024.

ORBIMED ADVISORS LLC

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

ORBIMED CAPITAL GP VII LLC

By: ORBIMED ADVISORS LLC, its managing member

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member of OrbiMed Advisors LLC
