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Q32 Bio Announces Publication of Preclinical Data in *Molecular Therapy* Demonstrating the Therapeutic Potential of Tissue-Targeted Complement Inhibitor ADX-097 for Complement-Mediated Diseases

— Novel approach to directly target local tissue complement dysregulation resulted in durable and efficacious complement blockade without systemic inhibition in preclinical studies —

— Company is planning to evaluate ADX-097 in a Phase 2 clinical trial of complement-mediated renal diseases, with initial data expected by year-end 2024 and topline results in 2025, and a Phase 2 clinical trial in ANCA-Associated Vasculitis (AAV) —

WALTHAM, Mass.—Feb. 21, 2024 – Q32 Bio Inc., a clinical stage biotechnology company developing biologic therapeutics to restore immune homeostasis, today announced the publication of preclinical data in *Molecular Therapy* that further validates the therapeutic potential of ADX-097, a tissue-targeted complement inhibitor. The paper, titled "C3d-Targeted factor H inhibits tissue complement in disease models and reduces glomerular injury without affecting circulating complement," was co-authored by Q32 Bio scientists Fei Liu, Ph.D., and Sarah Ryan, with Chief Scientific Officer Shelia Violette, Ph.D., and Stefan Wawersik, Ph.D., Vice President and Head of Research at Q32 Bio as senior authors.

ADX-097 is Q32 Bio's lead program from its tissue-targeted complement inhibitor platform. Q32 Bio has completed a Phase 1 clinical trial of ADX-097 and expects to initiate an open-label Phase 2 renal basket clinical trial this year as well as a Phase 2 clinical trial in ANCA-Associated Vasculitis (AAV). Initial data from the renal basket trial is expected by year-end and topline results from both Phase 2 trials are expected in 2025.

"These data described in the *Molecular Therapy* paper underscore the transformative potential which a tissue-targeting approach may provide, representing an exciting next generation evolution within the complement therapeutics field," said Michael Holers, M.D., University of Colorado Smyth Professor of Rheumatology and a co-founder of Q32 Bio. "Although systemic inhibitors can be leveraged to treat diseases of complement hyperactivity, complete and highly effective inhibition in tissues is very difficult to achieve due to high circulating concentrations and rapid turnover of complement components, and local complement factor production. Systemic treatments also increase infection risk because of complement's essential role in innate immunity."

Q32 Bio explored the biodistribution and pharmacology of fusion proteins containing a C3d antibody and a fragment of the complement negative regulator factor H (fH) in various animal models. The findings supported C3d as an effective localization target to deliver a novel and potent tissue-targeted approach to complement inhibition as demonstrated in mouse, rat and non-human primate models of complement activation. Additionally, in the Passive Heymann Nephritis model of membranous nephropathy in rats, researchers found that local complement inhibition is sufficient to modulate disease progression *in vivo*. Notably, without requiring systemic complement inhibition, C3d-mAb-fH fusion proteins in this model reduced glomerular complement, as measured in kidney tissue via immunostaining, as well as urinary complement activation biomarkers including the soluble C5b-9 complex. The fusion proteins also inhibited progression of renal injury and preserved podocyte architecture, suggesting disease-modifying efficacy.

“These preclinical data support Q32 Bio’s novel approach to tissue-targeted regulation of the complement system and the potential of ADX-097 across multiple complement-mediated diseases,” said Dr. Violette. “Together with the promising results from our Phase 1 clinical trial in healthy volunteers, which demonstrated a favorable tolerability and immunogenicity profile across all single and multiple dose cohorts, we are excited to advance ADX-097 into a Phase 2 basket clinical trial in multiple renal disease indications this year.”

“The data presented indicate that tissue C3d deposition is a feature of several autoimmune diseases affecting multiple organs, co-localizing with active complement, and that C3d-targeting could be a means of locally delivering a complement inhibitor for these indications,” added Dr. Wawersik. “These results suggest C3d-directed targeting as a strategy for potent, localized complement inhibitors, demonstrating that targeting local tissue complement results in durable and efficacious complement blockade while avoiding systemic inhibition. This has long been a goal in treating patients with autoimmune and inflammatory disorders.”

About ADX-097

ADX-097 is based on a novel platform enabling tissue-targeted regulation of the complement system without long-term systemic blockade, a key differentiator from current complement therapeutics. Q32 Bio recently completed a first-in-human, Phase 1 ascending dose clinical study of ADX-097 in healthy volunteers. Results from the Phase 1 clinical trial demonstrated a favorable tolerability and immunogenicity profile across all single and multiple dose cohorts and weekly subcutaneous dosing met exposures for predicted complete complement inhibition in the tissue with no systemic inhibition. Q32 Bio expects to initiate an open-label Phase 2 basket clinical trial, with initial data expected by year-end 2024, and a Phase 2 clinical trial in ANCA-Associated Vasculitis (AAV), with topline results from the AAV and basket trials expected in the second half of 2025.

About Q32 Bio

Q32 Bio is a clinical stage biotechnology company developing biologic therapeutics targeting potent regulators of the innate and adaptive immune systems to re-balance immunity in autoimmune and inflammatory diseases. Q32 Bio's lead programs, focused on the IL-7 / TSLP receptor pathways and complement system, address immune dysregulation to help patients take back control of their lives.

Q32 Bio's program for adaptive immunity, bempikibart (ADX-914), is a fully human anti-IL-7Rα antibody that re-regulates adaptive immune function for the treatment of autoimmune diseases. It is being evaluated in two Phase 2 trials for the treatment of atopic dermatitis and alopecia areata. The IL-7 and TSLP pathways have been genetically and biologically implicated in driving several T cell-mediated pathological processes in numerous autoimmune diseases. Q32 Bio's program for innate immunity, ADX-097, is based on a novel platform enabling tissue-targeted regulation of the complement system without long-term systemic blockade – a key differentiator versus current complement therapeutics. Q32 Bio has recently completed a first-in-human, Phase 1 ascending dose clinical study of ADX-097 in healthy volunteers.

Cautionary Statement Regarding Forward-Looking Statements

This communication contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, including statements regarding the expectations surrounding the potential, safety, efficacy, and regulatory and clinical progress of Q32 Bio's product candidates, including ADX-097, and anticipated milestones and timing, among others.

Forward-looking statements generally include statements that are predictive in nature and depend upon or refer to future events or conditions, and include words such as "may," "will," "should," "would," "expect," "anticipate," "plan," "likely," "believe," "estimate," "project," "intend," and other similar expressions among others. Statements that are not historical facts are forward-looking statements. Forward-looking statements are based on current beliefs and assumptions that are subject to risks and uncertainties and are not guarantees of future performance. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including, without limitation: (i) potential unforeseen events during clinical trials could cause delays or other adverse consequences; (ii) risks relating to the regulatory approval process; (iii) interim, topline and preliminary data 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; (iv) Q32 Bio's product candidates may cause serious adverse side effects; (v) the potential for ADX-097 to provide therapeutic benefit in complement mediated diseases; (vi) the company's reliance on third parties, including for the manufacture of materials for our research programs, preclinical and clinical studies; (vii) failure to obtain U.S. or international marketing approval; (viii) ongoing regulatory obligations; effects of significant competition; (ix) unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives; (x) product liability lawsuits; (xi) securities class action litigation; (xii) the impact of the COVID-19 pandemic and general economic conditions on our business and operations, including the combined company's preclinical studies and clinical trials; (xiii) the possibility of system failures or security breaches; risks relating to intellectual property; Except as required by applicable law, Q32 Bio undertakes no obligation to revise or update any forward-looking statement, or to make any other forward-looking statements, whether as a result of new information, future events or otherwise.

Important Information about the Merger and Where to Find It

This communication relates to a proposed transaction between Homology Medicines and Q32 Bio. In connection with the proposed transaction, Homology Medicines has filed with the SEC a registration statement on Form S-4 that includes a proxy statement of Homology Medicines and that constitutes a prospectus with respect to shares of Homology Medicines' common stock to be issued in the proposed transaction (Proxy Statement/Prospectus). Homology Medicines may also file other documents with the SEC regarding the proposed transaction. This document is not a substitute for the Proxy Statement/Prospectus or any other document which Homology Medicines may file with the SEC. INVESTORS, Q32 BIO STOCKHOLDERS AND HOMOLOGY MEDICINES STOCKHOLDERS ARE URGED TO READ THE PROXY STATEMENT/PROSPECTUS AND ANY OTHER RELEVANT DOCUMENTS THAT ARE OR WILL BE FILED BY HOMOLOGY MEDICINES WITH THE SEC, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THESE DOCUMENTS, CAREFULLY AND IN THEIR ENTIRETY BECAUSE THEY CONTAIN OR WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION AND RELATED MATTERS. Investors, Q32 Bio stockholders and Homology Medicines stockholders will also be able to obtain free copies of the Proxy Statement/Prospectus and other documents containing important information about Homology Medicines, Q32 Bio and the proposed transaction that are or will be filed with the SEC by Homology Medicines through the website maintained by the SEC at www.sec.gov. Copies of the documents filed with the SEC by Homology Medicines will also be available free of charge on Homology Medicines' website at https://investors.homologymedicines.com/financial-information/sec-filings or by contacting Homology Medicines' investor relations department by email at IR@homologymedicines.com.

No Offer or Solicitation

This communication is not intended to and shall not constitute an offer to buy or sell or the solicitation of an offer to buy or sell any securities, or a solicitation of any vote or approval, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offer of securities shall be made, except by means of a prospectus meeting the requirements of Section 10 of the Securities Act.

Participants in the Solicitation

Homology Medicines and certain of its directors and executive officers may be deemed under SEC rules to be participants in the solicitation of proxies of Homology Medicines stockholders in connection with the proposed transaction. Information regarding the persons who may, under SEC rules, be deemed participants in the solicitation of proxies to Homology Medicines

stockholders in connection with the proposed transaction are set forth in the Proxy Statement/Prospectus on Form S-4 for the proposed transaction, has been filed with the SEC by Homology Medicines. Investors and security holders of Q32 Bio and Homology Medicines are urged to read the Proxy Statement/Prospectus and other relevant documents that are or will be filed with the SEC by Homology Medicines carefully and in their entirety when they become available because they contain, or will contain, important information about the proposed transaction. Investors and security holders will be able to obtain free copies of the Proxy Statement/Prospectus and other documents containing important information about Q32 Bio and Homology Medicines through the website maintained by the SEC at www.sec.gov. Copies of the documents filed with the SEC by Homology Medicines can be obtained free of charge by directing a written request to Homology Medicines, Inc., One Patriots Park, Bedford, MA 01730.

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