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

SCHEDULE 14A (Rule 14a-101)

INFORMATION REQUIRED IN PROXY STATEMENT SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

Filed by t	he Registrant	
Filed by a	Party other than the Registrant	
Check the	e appropriate box:	
□ Pre	liminary Proxy Statement	
□ Coi	nfidential, for Use of the Commission	on Only (as permitted by Rule 14a-6(e)(2))
⊠ Def	initive Proxy Statement	
□ Def	initive Additional Materials	
□ Sol:	iciting Material Pursuant to §240.14a	-12
		BIOMX INC. registrant as specified in its charter)
	(Name of Person(s) Filing	Proxy Statement, if other than the Registrant)
Payment	of Filing Fee (Check the appropriate	box):
⊠ No	fee required.	
□ Fee	paid previously with preliminary ma	aterials.
□ Fee	computed on table in exhibit require	d by Item 25(b) per Exchange Act Rules 14a6(i)(1) and 0-11.

Proxy Statement dated March 27, 2025 and first mailed to stockholders on or about March 27, 2025

Dear Stockholders:

You are cordially invited to attend a Special Meeting of Stockholders of BiomX Inc. at 8:00 a.m., Eastern Time, on April 21, 2025. The Special Meeting will be held entirely online to allow for greater participation. Stockholders may participate in the special meeting by visiting the following hosting URL: https://www.virtualshareholdermeeting.com/PHGE2025SM.

Your vote is very important! Whether or not you plan to attend the Special Meeting, we urge you to read the enclosed proxy statement and vote as soon as possible via the Internet, by telephone or, if you receive a paper proxy card or voting instruction form in the mail, by mailing the completed proxy card or voting instruction form.

Thank you for your confidence and continued support.

Sincerely,
/s/ Jonathan Solomon

Chief Executive Officer

Jonathan Solomon

BIOMX INC. 22 Einstein St., 4th Floor Ness Ziona 7414003, Israel

NOTICE OF SPECIAL MEETING OF STOCKHOLDERS To be held April 21, 2025

Notice is hereby given that a Special Meeting of Stockholders, or "Special Meeting," of BiomX Inc., or "we," "our," "us," "BiomX" or the "Company," will be held online on April 21, 2025, at 8:00 a.m. Eastern Time. You, or your proxy may attend the meeting virtually via the Internet at https://www.virtualshareholdermeeting.com/PHGE2025SM, where you, or your proxy, will be able to vote electronically and examine the Company's stockholder list during the Special Meeting. You will need the 16-digit control number included with these materials to attend the Special Meeting and to vote and otherwise participate in the Special Meeting. The purpose of the Special Meeting is the following:

- 1. To approve the exercise of certain warrants into shares of common stock of the Company, par value \$0.0001 per share, in accordance with Section 713 of the NYSE American LLC Listed Company Guide, previously issued in private placements (i) pursuant to that certain Securities Purchase Agreement, dated February 25, 2025, by and among the Company and the investors signatory thereto and (ii) pursuant to that certain Inducement Letter, dated February 25, 2025, by and among the Company and the holders signatory thereto ("Proposal No. 1");
- 2. To approve the adjournment or postponement of the Special Meeting, if necessary, to continue to solicit votes for Proposal No. 1 ("Proposal No. 2"); and
- To transact any other business that may properly come before the Special Meeting or any adjournment or postponement thereof.

Only BiomX Inc. stockholders of record at the close of business on March 17, 2025, will be entitled to vote at the Special Meeting and any adjournment or postponement thereof.

Your vote is important. Whether or not you are able to attend the virtual meeting, it is important that your shares be represented. To ensure that your vote is recorded promptly, please vote as soon as possible, even if you plan to attend the virtual meeting, by submitting your proxy via the Internet at the address listed on the proxy card or by signing, dating and returning the proxy card.

Important Notice Regarding the Availability of Proxy Materials for the Special Meeting to Be Held on April 21, 2025: The proxy statement and proxy card are also available at www.proxyvote.com.

By order of the Board of Directors,		
/s/ Jonathan Solomon		
Jonathan Solomon		
Chief Executive Officer		
Ness Ziona, Israel		
March 27, 2025		

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PROXY STATEMENT DATED MARCH 27, 2025 FOR SPECIAL MEETING OFSTOCKHOLDERS OF BIOMX INC.

BIOMX INC. 22 Einstein St., 4th Floor Ness Ziona 7414003, Israel

PROXY STATEMENT FOR THE SPECIAL MEETING OF STOCKHOLDERS TO BE HELD APRIL 21, 2025

This proxy statement contains information about the Special Meeting of Stockholders (the "Special Meeting") of BiomX Inc., which will be held online on April 21, 2025, at 8:00 a.m. Eastern Time. You may attend the meeting virtually via the Internet at https://www.virtualshareholdermeeting.com/PHGE2025SM, where you will be able to vote electronically. The board of directors of BiomX Inc. (the "BiomX Board" or the "Board") is using this proxy statement to solicit proxies for use at the Special Meeting. In this proxy statement, the terms "BiomX," "we," "us," and "our" refer to BiomX Inc. The mailing address of our principal executive offices is BiomX Inc., 22 Einstein St., 4th Floor, Ness Ziona 7414003, Israel.

All properly submitted proxies will be voted in accordance with the instructions contained in those proxies. If no instructions are specified, the proxies will be voted in accordance with the recommendation of our Board with respect to each of the matters set forth in the accompanying Notice of the Special Meeting of Stockholders. You may revoke your proxy at any time before it is exercised at the meeting by giving our corporate secretary written notice to that effect.

At the Special Meeting, BiomX will ask its stockholders to:

- approve the exercise of certain warrants (collectively, the "Warrants") into shares of common stock of the Company, par value \$0.0001 per share (the "Common Stock"), in accordance with Section 713 of the NYSE American LLC Listed Company Guide, previously issued in private placements (i) pursuant to that certain Securities Purchase Agreement, dated February 25, 2025, by and among the Company and the investors signatory thereto (the "Purchase Agreement") and (ii) pursuant to that certain Inducement Letter, dated February 25, 2025, by and among the Company and the holders signatory thereto (the "Inducement Letter") ("Proposal No. 1");
- approve the adjournment or postponement of the Special Meeting, if necessary, to continue to solicit votes for the above-mentioned proposal ("Proposal No. 2").

After careful consideration, the Board has approved the proposals referred to above, and has determined that they are advisable, fair and in the best interests of BiomX's stockholders. Accordingly, the Board recommends that stockholders vote "FOR" Proposal No. 1 and, if necessary to solicit additional proxies if there are not sufficient votes to approve Proposal No. 1, and such proposal is presented, "FOR" Proposal No. 2.

Your vote is important. Whether or not you expect to attend the virtual Special Meeting, please complete, date, sign and promptly return the accompanying proxy card in the enclosed postage paid envelope to ensure that your shares will be represented and voted at the Special Meeting. You can also vote your shares via the internet or by telephone as provided in the instructions set forth in the enclosed proxy card. If you hold your shares in "street name" through a broker, you should follow the procedures provided by your broker.

We thank you for your consideration and continued support.

Yours sincerely,	
/s/ Jonathan Solomon	
Jonathan Solomon	
Chief Executive Officer	

This proxy statement is dated March 27, 2025 and is first being mailed to stockholders on or about March 27, 2025.

BIOMX INC. PROXY STATEMENT FOR THE SPECIAL MEETING OF STOCKHOLDERS QUESTIONS AND ANSWERS ABOUT THE SPECIAL MEETING

The following section provides answers to frequently asked questions about the Special Meeting. This section, however, only provides summary information. These questions and answers may not address all issues that may be important to you as a stockholder. You should carefully read this entire proxy statement, including Annex A.

When are this proxy statement and the accompanying materials scheduled to be sent to stockholders?

On or about March 27, 2025, we will begin mailing our proxy materials, including the Notice of the Special Meeting, this proxy statement and the accompanying proxy card or, for shares held in street name (i.e. held for your account by a broker or other nominee), a voting instruction form.

How do I attend the Special Meeting?

The meeting will be held entirely online on April 21, 2025, at 8:00 a.m. Eastern Time at www.virtualshareholdermeeting.com/PHGE2025SM. Directions to the Special Meeting may be found at www.biomx.com. Information on how to vote at the virtual Special Meeting is discussed below.

Who is soliciting my vote?

Our Board is soliciting your vote for the Special Meeting.

When is the record date for the Special Meeting?

The record date for determination of stockholders entitled to vote at the Special Meeting (the "Record Date") is the close of business on March 17, 2025.

How many votes can be cast by all stockholders?

There were 24,966,053 shares of our Common Stock outstanding on March 17, 2025, all of which are entitled to vote with respect to all matters to be acted upon at the Special Meeting. Each outstanding share of our Common Stock is entitled to one vote on each matter considered at the Special Meeting. 14,773,500 shares of our Series X Preferred Stock were outstanding as of March 17, 2025, none of which are entitled to vote with respect to any matters to be acted upon at the Special Meeting.

How do I vote?

By Internet at the Special Meeting.

Instructions on how to attend and vote at the Special Meeting are described at https://www.virtualshareholdermeeting.com/PHGE2025SM, although BiomX encourages you to vote by proxy at your earliest convenience to ensure your shares are represented, in case you later decide not to attend the Special Meeting virtually. Stockholders will need their unique 16-digit control number that accompanied the proxy materials. A technical support telephone number will be posted on the log-in page of https://www.virtualshareholdermeeting.com/PHGE2025SM that you can call if you encounter any difficulties accessing the virtual meeting during the check-in or during the Special Meeting.

By Proxy

If your shares are held directly in your own name, and you received printed copies of the proxy materials, you may vote your shares by mail by completing, signing and dating the proxy card. To vote over the internet or by telephone, you should refer to your proxy card for instructions.

If your shares are held in street name, meaning registered in the name of your broker, bank or other nominee, you should vote your shares by following the instructions from your broker, bank or other nominee.

To ensure your shares are voted by proxy, proxies submitted by Internet or by telephone should be received by the cutoff time of 11:59 p.m. Eastern Time on April 20, 2025. Proxies submitted by mail must be received before the start of the Special Meeting.

If you complete and submit your proxy before the Special Meeting, the persons named as proxies will vote the shares represented by your proxy in accordance with your instructions. If you submit a proxy without giving voting instructions, your shares will be voted in the manner recommended by the Board on all matters presented in this proxy statement.

What shares are included on a proxy card or voting instruction form?

Each proxy card or voting instruction form represents the shares registered to you as of the close of business on the Record Date. You may receive more than one proxy card or voting instruction form if you hold your shares in multiple accounts, some of your shares are registered directly in your name with our transfer agent, or some of your shares are held in street name through a broker, bank, or other nominee. Please vote the shares on each proxy card or voting instruction form to ensure that all of your shares are counted at the Special Meeting.

What if I have shares registered in my name and don't vote on a particular matter when returning a proxy card?

Properly signed proxy cards received before the close of voting at the Special Meeting will be voted according to the directions provided. If a signed proxy card is returned without stockholder direction on a matter, the shares will be voted as recommended by the Board.

Can I change my vote?

Stockholder of Record: Shares Registered in Your Name

If your shares are registered directly in your name, you may change your vote or revoke your proxy by:

- delivering written notice to our Corporate Secretary or sent to our principal executive offices at BiomX Inc., 22 Einstein St., 4th Floor, Ness Ziona 7414003, Israel, Attention: Corporate Secretary at any time before the close of voting at the Special Meeting;
- submitting a later dated proxy over the internet or by telephone in accordance with the instructions in the proxy card; or
- voting your shares electronically during the Special Meeting.

If your shares are held in street name, you should contact your broker, bank or other nominee to change your vote or revoke your proxy.

How do I revoke my proxy?

You may revoke your proxy by (1) following the instructions on the proxy card and entering a new vote by mail that we receive before the start of the Special Meeting or over the Internet or by telephone by the cutoff time of 11:59 p.m. Eastern Time on April 20, 2025, (2) attending and voting at the virtual Special Meeting (although attendance at the Special Meeting will not in and of itself revoke a proxy), or (3) by filing an instrument in writing revoking the proxy or another duly executed proxy bearing a later date with our Corporate Secretary. Any written notice of revocation or subsequent proxy card must be received by our Corporate Secretary prior to the taking of the vote at the Special Meeting. Such written notice of revocation or subsequent proxy card should be hand delivered to our Corporate Secretary or sent to our principal executive offices at BiomX Inc., 22 Einstein St., 4th Floor, Ness Ziona 7414003, Israel, Attention: Corporate Secretary.

If a broker, bank, or other nominee holds your shares, you must contact such broker, bank, or nominee in order to find out how to change your vote.

How is a quorum reached?

Our amended and restated bylaws (as amended, the "Bylaws") provide that onethird (1/3) of the stock issued and outstanding and entitled to vote, present at the virtual meeting or represented by proxy, will constitute a quorum for the transaction of business at the Special Meeting.

Under the General Corporation Law of the State of Delaware, shares that are voted "abstain" or "withheld" are counted as present for purposes of determining whether a quorum is present at the Special Meeting. If a quorum is not present, the meeting may be adjourned until a quorum is obtained. "Broker non-votes" are not applicable for this Special Meeting because stockholders are being asked to vote on matters that are deemed "non-routine" and for which brokers do not have discretionary voting power.

What proposals will be voted on at the Special Meeting?

There are two proposals scheduled to be voted on at the meeting:

- Approval of the issuance of shares of Common Stock upon the exercise of the Warrants in accordance with Section 713 of the NYSE American Listed Company Guide ("Proposal No. 1," or the "Issuance Proposal").
- 2. Approval of, if necessary, the adjournment or postponement of the Special Meeting, to continue to solicit votes for Proposal No. 1 ("Proposal No. 2," or the "Adjournment Proposal").

What vote is required to approve each item at the Special Meeting?

You may vote "FOR," "AGAINST" or "ABSTAIN" on Proposal No. 1 and Proposal No. 2. Under our Bylaws, any proposal other than an election of directors is decided by the vote of the holders of a majority of the stock present in person or represented by proxy and entitled to vote on the question, unless the question is one upon which by express provision of law, our Certificate of Incorporation or our Bylaws, a different vote is required, in which case such express provision shall govern and control the decision of such question.

Proposal No. 1 requires the affirmative vote of the holders of a majority of the stock of the Company which is represented in person or by proxy at the Special Meeting and entitled to vote on the question.

Proposal No. 2 requires the affirmative vote of a majority of the stockholders present in person or represented by proxy at the meeting and entitled to vote, though less than a quorum (for the purpose of soliciting additional proxies to approve Proposal No. 1).

How is the vote counted?

If your shares are registered directly in your name, you are a "stockholder of record" who may vote at the meeting, and we are sending these proxy materials directly to you. As the stockholder of record, you have the right to direct the voting of your shares by voting over the Internet, by telephone, by returning your proxy or by voting online during the Special Meeting at https://www.virtualshareholdermeeting.com/PHGE2025SM.

If your shares are held in an account at a bank or at a brokerage firm or other nominee holder, you are considered the beneficial owner of shares held in "street name," and these proxy materials are being forwarded to you by your bank, broker or other nominee who is considered the stockholder of record for purposes of voting at the Special Meeting. As the beneficial owner, you have the right to direct your bank, broker or other nominee on how to vote your shares and to participate in the Special Meeting. You should receive a proxy card and voting instructions with these proxy materials from that organization rather than from us. You will receive instructions from your bank, broker or other nominee explaining how you can vote your shares and whether they permit Internet or telephone voting. Follow the instructions from your bank, broker or other nominee included with these proxy materials, or contact your bank, broker or other nominee to request a proxy form. We encourage you to provide voting instructions to your bank, broker or other nominee by giving your proxy to them. This ensures that your shares will be voted at the Special Meeting according to your instructions.

If you hold shares through a bank, broker or other intermediary firm, the intermediary firm is subject to certain New York Stock Exchange, or NYSE, rules regarding voting. Under NYSE rules, Proposals No. 1 and 2 are each a non-discretionary item. Intermediary firms that have not received voting instructions from their clients on this item may not vote on Proposals No. 1 or 2. Broker non-votes are not applicable for this Special Meeting because stockholders are being asked to vote on matters that are deemed "non-routine" and for which brokers do not have discretionary voting power.

Abstentions, if any, would have the same effect as a vote "AGAINST" Proposals No. 1 and 2. Abstentions are counted as shares present and entitled to vote for the purpose of determining whether a quorum is present.

Are the proposals conditioned on one another?

None of the proposals are conditioned on another proposal.

Do I have appraisal rights?

Our stockholders are not entitled to dissenters' or appraisal rights under the General Corporation Law of the State of Delaware ("DGCL") with respect to any of the proposals being voted on.

Who pays the cost for soliciting proxies?

We will bear the cost of soliciting proxies, including the printing, mailing and filing of this proxy statement, the proxy card and any additional information furnished to stockholders. You will need to obtain your own internet access if you choose to access the proxy materials and/or vote over the internet. BiomX may use the services of its directors, officers and other employees to solicit proxies from BiomX's stockholders without additional compensation. Arrangements will also be made with banks, brokers, nominees, custodians and fiduciaries who are record holders of Common Stock for the forwarding of solicitation materials to the beneficial owners of Common Stock. BiomX will reimburse these banks, brokers, nominees, custodians and fiduciaries for the reasonable out-of-pocket expenses they incur in connection with the forwarding of solicitation materials.

Could other matters be decided at the Special Meeting?

We do not know of any other matters that may be presented for action at the Special Meeting. Should any other business come before the meeting, the persons named on the proxy will have discretionary authority to vote the shares represented by such proxies in accordance with their best judgment. If you hold shares through a broker, bank or other nominee as described above, they will not be able to vote your shares on any other business that comes before the Special Meeting unless they receive instructions from you with respect to such matter.

What happens if the meeting is postponed or adjourned?

Your proxy may be voted at the postponed or adjourned meeting. You will still be able to change your proxy until it is voted.

How can I know the voting results?

We plan to announce the final results in a Current Report on Form 8-K to be filed with the SEC within four business days following the Special Meeting.

Who can provide me with additional information and help answer my questions?

If you would like additional copies, without charge, of this proxy statement or if you have questions about the proposals being considered at the Special Meeting, including the procedures for voting your shares, you should contact BiomX's Corporate Secretary, by telephone at (972) 72 394 2377.

What is "householding" and how does it affect me?

With respect to eligible stockholders who share a single address, we may send only one copy of the proxy materials to that address unless we receive instructions to the contrary from any stockholder at that address. This practice, known as "householding," is designed to reduce our printing and postage costs. However, if a stockholder of record residing at such address wishes to receive separate proxy materials in the future, he or she may contact BiomX Inc., at 22 Einstein Street, 4th Floor, Ness Ziona 7414003, Israel, Attention: Marina Wolfson. Eligible stockholders of record receiving multiple copies of our proxy materials can request householding by contacting us in the same manner. Stockholders who own shares through a bank, broker or other intermediary can request householding by contacting the intermediary.

We hereby undertake to deliver promptly, upon written or oral request, a copy of the proxy materials to a stockholder at a shared address to which a single copy of the document was delivered. Requests should be directed to the address set forth above.

PROPOSALS

PROPOSAL NO. 1: ISSUANCE PROPOSAL

Overview

On February 25, 2025, BiomX entered into (i) the Purchase Agreement with certain investors (the "Investors") and (ii) the Inducement Letter with certain holders of existing warrants (the "Holders") (collectively, the "Offering").

Pursuant to the terms of the Purchase Agreement and the Inducement Letter, the Company has agreed to submit to its stockholders for their consideration the approval of the exercise of the Warrants (as defined below) into shares of Common Stock in accordance with the rules of NYSE American. Section 713 of the NYSE American Listed Company Guide requires stockholder approval of transactions involving the issuance of 20% or more of a company's outstanding shares or voting power. The exercise of all of the Warrants would result in an issuance of 20% or more of BiomX's outstanding shares.

Background of the Proposal

Overview of Warrants

Pursuant to the terms of the Purchase Agreement, we issued (i) in a registered direct offering: (a) 2,828,283 shares of Common Stock and (ii) pre-funded warrants (the "Registered Pre-Funded Warrants") to purchase up to 805,231 shares of Common Stock (the "Registered Direct Offering") and (ii) in a concurrent private placement: (a) unregistered pre-funded warrants exercisable for an aggregate of 2,305,869 shares of Common Stock at an exercise price of \$0.0001 per share (the "Private Placement Pre-Funded Warrants") and (b) unregistered common warrants exercisable for an aggregate of 5,939,383 shares of Common Stock at an exercise price of \$0.9306 per share (the "Private Placement Common Warrants"). Pursuant to the Inducement Letter, we issued unregistered common warrants exercisable for an aggregate of 6,955,528 shares of Common Stock at an exercise price of \$0.9306 per share (the "New Common Warrants"), and together with the Private Placement Pre-Funded Warrants and the Private Placement Common Warrants, the "Warrants"). An aggregate of 15,200,780 shares of Common Stock are issuable upon exercise of the Warrants, assuming the approval of Proposal No. 1 and subject to certain beneficial ownership limitations.

Shares Issuable upon Exercise of the Warrants

Set forth below is a table summarizing the exercise price and number of shares of Common Stock that are potentially issuable upon conversion of the Warrants. The sale into the public market of the underlying Common Stock could materially and adversely affect the market price of our Common Stock.

	Exercise Price	Common Stock (as exercised)
Private Placement Pre-Funded Warrants	\$ 0.0001	2,305,869
Private Placement Common Warrants	\$ 0.9306	5,939,383
New Common Warrants	\$ 0.9306	6,955,528
Total	N/A	15,200,780

Description of the Private Placement Pre-Funded Warrants

The Private Placement Pre-Funded Warrants may be exercised at any time following the approval of the Issuance Proposal at an exercise price of \$0.0001 and until exercised in full. The exercise price of the Private Placement Pre-Funded Warrants is subject to customary adjustments for stock dividends, stock splits, recapitalization or similar events affecting the Common Stock and the exercise price. There is no established public trading market for the Private Placement Pre-Funded Warrants and the Company does not intend to list the Private-Placement Pre-Funded Warrants on any national securities exchange or nationally recognized trading system.

The foregoing description of the Private Placement Pre-Funded Warrants does not purport to be complete and is qualified in its entirety by reference to the full text of the Private Placement Pre-Funded Warrant, the form of which is filed as Exhibit 4.2 to our Current Report on Form 8-K filed on February 27, 2025, and is incorporated herein by reference.

Description of the Private Placement Common Warrants

The Private Placement Common Warrants may be exercised at any time following stockholder approval of the Issuance Proposal at an exercise price of \$0.9306 and will expire on the five-year anniversary of the date on which they are first exercisable. The exercise price of the Private Placement Common Warrants is subject to customary adjustments for stock dividends, stock splits, recapitalization or similar events affecting the Common Stock and the exercise price. There is no established public trading market for the Private Placement Common Warrants and the Company does not intend to list the Private-Placement Common Warrants on any national securities exchange or nationally recognized trading system.

The foregoing description of the Private Placement Common Warrants does not purport to be complete and is qualified in its entirety by reference to the full text of the Private Placement Common Warrant, the form of which is filed as Exhibit 4.3 to our Current Report on Form 8-K filed on February 27, 2025, and is incorporated herein by reference.

Description of the New Common Warrants

The terms of the New Common Warrants are substantially the same as those of the Private Placement Common Warrants.

The foregoing description of the New Common Warrants does not purport to be complete and is qualified in its entirety by reference to the full text of the New Common Warrant, the form of which is filed as Exhibit 4.4 to our Current Report on Form 8-K filed on February 27, 2025, and is incorporated herein by reference.

Reasons for the Proposal

Our Common Stock is listed on NYSE American, and, as such, we are subject to the applicable rules of the New York Stock Exchange, including Section 713 of the NYSE American Listed Company Guide, which requires stockholder approval in connection with the acquisition of another company if the NYSE American-listed company will issue more than 20% of its common stock. For purposes of Section 713 of the NYSE American Listed Company Guide, the issuance of any Common Stock or securities exercisable for shares of Common Stock in connection with the Offering (including the Registered Direct Offering) would be aggregated together. Thus, in order to permit the issuance of Common Stock upon exercise of the Warrants, we must first obtain stockholder approval of this exercise.

Consequences of Not Approving the Proposal

If our stockholders do not approve this proposal, we will not be able to effect the exercise of the Warrants. Additionally, if our stockholders do not approve this proposal, we are required pursuant to the Purchase Agreement to use our reasonable best efforts to adjourn this Special Meeting one or more times to a date or dates no more than 90 days after the scheduled date for this Special Meeting, and to obtain such approval at such time. If the approval of this proposal is not then obtained, we are required pursuant to the Purchase Agreement to use our reasonable best efforts to obtain such approval as soon as practicable thereafter, and in any event to hold a special meeting of stockholders at least once every 90 days until we obtain approval of this proposal.

Consequences of Approving the Proposal

If our stockholders approve this proposal our existing stockholders will immediately experience significant dilution

Interests of Certain Persons in the Proposal

When you consider our Board's recommendation to vote in favor of this proposal, you should be aware that certain of our directors, officers and existing stockholders may have interests that may be different from, or in addition to, the interests of other of our stockholders. In particular, the Cystic Fibrosis Foundation, Deerfield Healthcare Innovations Fund II, L.P. ("Deerfield Healthcare Innovations"), Deerfield Private Design Fund V, L.P. ("Deerfield Private Design,"

and together with Deerfield Healthcare Innovations and Deerfield Management Company, L.P., "Deerfield"), Nantahala Capital Management, LLC, an affiliate of OrbiMed Israel GP Ltd., Alyeska Master Fund and AIGH Investment Partners, LP, each of whom beneficially owns more than 5% of our Common Stock, and some of which received a mix of Warrants in connection with the Offering. Additionally, Jonathan Leff, one of our directors, is an affiliate of Deerfield. Such parties will not be able to exercise their respective Warrants if this proposal is not approved by our stockholders. None of these parties will, by virtue of the issuance of shares of Common Stock to which each is entitled upon of their respective Warrants, acquire rights to a majority of the voting power of the Company, based on the number of shares of Common Stock outstanding as of the Record Date and giving effect to the exercise of the respective Warrants held by such parties.

Vote Required; Recommendation of Board

Stockholder approval of this Proposal No. 1 requires a "FOR" vote of the holders of a majority of the stock of the Company which is represented in person or by proxy at the Special Meeting and entitled to vote on the question (provided that a lawful quorum of stockholders be there represented in person or by proxy) (subject to the separate tabulation of votes described in "Questions and Answers About the Special Meeting — How many votes can be cast by all stockholders?"). Abstentions will have the effect of a vote "AGAINST" Proposal No. 1. Broker non-votes are not applicable for this Special Meeting because stockholders are being asked to vote on matters that are deemed "non-routine" and for which brokers do not have discretionary voting power.

THE BOARD RECOMMENDS THAT OUR STOCKHOLDERS VOTE "FOR" THE APPROVAL OF, UNDER APPLICABLE NYSE AMERICAN LISTING RULES, THE ISSUANCE OF SHARES OF COMMON STOCK UPON EXERCISE OF THE PRIVATE PLACEMENT WARRANTS AND INDUCEMENT WARRANTS.

PROPOSAL NO. 2: APPROVAL OF ADJOURNMENT OF THE SPECIAL MEETING

General

If we fail to receive a sufficient number of votes to approve Proposal No. 1, we may propose to adjourn or postpone the Special Meeting. We currently do not intend to propose adjournment or postponement at the Special Meeting if there are sufficient votes to approve Proposal No. 1.

Vote Required; Recommendation of Board

The affirmative vote of a majority of the stockholders present in person or represented by proxy at the meeting and entitled to vote, though less than a quorum, is required for approval of Proposal No. 2 (for the purpose of soliciting additional proxies to approve Proposal No. 1). Abstentions will have the effect of a vote "AGAINST" Proposal No. 2. Broker non-votes are not applicable for this Special Meeting because stockholders are being asked to vote on matters that are deemed "non-routine" and for which brokers do not have discretionary voting power.

THE BOARD RECOMMENDS THAT OUR STOCKHOLDERS VOTE "FOR" PROPOSAL NO. 2 TO ADJOURN THE SPECIAL MEETING, IF NECESSARY, TO SOLICIT ADDITIONAL PROXIES.

PRINCIPAL STOCKHOLDERS

The following table sets forth information, to the extent known by us or ascertainable from public filings, with respect to the beneficial ownership of our Common Stock as of March 17, 2025, by:

- · each of our directors;
- · each of our Named Executive Officers;
- · all of our directors and executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially owner of greaterthan-5.0% of our voting securities.

We have determined beneficial ownership in accordance with the rules of the SEC, which generally means that a person has beneficial ownership of a security if he or she possesses sole or shared voting or investment power of that security, including convertible securities that are currently exercisable or are exercisable within 60 days of March 17, 2025. Unless otherwise indicated, to our knowledge, the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to community property laws where applicable. The information in the table below does not necessarily indicate beneficial ownership for any other purpose, including for purposes of Sections 13(d) and 13(g) of the Securities Act.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 24,966,053 shares of Common Stock outstanding as of March 17, 2025.

Name and Address of Beneficial Owner ⁽¹⁾	Amount and Nature of Beneficial Ownership	Percent of Class
Cystic Fibrosis Foundation ⁽²⁾	2,494,109	9.99%
Nantahala Capital Management, LLC ⁽³⁾	2,494,109	9.99%
Deerfield Healthcare Innovations Fund II, L.P.(4)	2,632,517	9.99%
OrbiMed Israel GP Ltd. ⁽⁵⁾	1,847,565	7.38%
Alyeska Master Fund ⁽⁶⁾	1,590,738	6.37%
AIGH Investment Partners, LP ⁽⁷⁾	1,590,738	6.37%
Directors and Named Executive Officers		
Jonathan Solomon ⁽⁸⁾	184,054	*
Marina Wolfson ⁽⁹⁾	17,087	*
Dr. Merav Bassan ⁽¹⁰⁾	67,043	*
Susan Blum	_	_
Dr. Russell Greig ⁽¹¹⁾	14,071	*
Dr. Jesse Goodman	_	_
Jonathan Leff	_	_
Gregory Merril	_	_
Dr. Alan Moses ⁽¹²⁾	7,582	*
Edward Williams ⁽¹³⁾	1,537	*
All directors and executive officers as a group (10 persons)	291,374	1.17%

^{*} Less than 1%.

Represents 2,494,109 shares of Common Stock and excludes (i) 1,308,800 shares of Common Stock issuable upon conversion of 13,088 shares of Series X Preferred Stock (subject to a 9.99% beneficial ownership limitation), (ii) 1,081,750 shares of Common Stock issuable upon exercise of the Private Placement Common Warrants (subject to a 9.99% beneficial ownership limitation), (iii) 1,174,859 shares of Common Stock issuable upon exercise of New Warrants (subject to a 9.99% beneficial ownership blocker). (iv) 375,399 shares of Common Stock issuable upon exercise of certain amended and restated

Unless otherwise indicated, the business address of each of the individuals is c/o BiomX Inc., 22 Einstein St., 4th
Floor, Ness Ziona 7414003, Israel.

⁽²⁾ Based on certain information made available to the Company and on the Schedule 13G/A filed with the SEC on March 4, 2025, by Cystic Fibrosis Foundation.

warrants (subject to a beneficial ownership blocker) issued on February 27, 2025 (the "AR Warrants"), (v) 583,237 shares of Common Stock issuable upon exercise of Private Placement Pre-Funded Warrants (subject to a 9.99% beneficial ownership limitation) and (vi) 591,622 shares of Common Stock issuable upon exercise of Registered Pre-Funded Warrants (subject to a 9.99% beneficial ownership limitation). Such Private Placement Common Warrants, New Warrants and Private Placement Pre-Funded Warrants will only be exercisable following stockholder approval.

The address of Cystic Fibrosis Foundation is 4550 Montgomery Ave. Suite 1100N Bethesda, MD 20814.

(3) Based on certain information made available to the Company and on the Schedule 13G filed jointly with the SEC on November 13, 2024, by Nantahala Capital Management, LLC ("Nantahala"), Wilmot B. Harkey and Daniel Mack. Represents 2,494,109 shares of Common Stock. Excludes (i) 865,300 shares of Common Stock issuable upon exercise of New Warrants (subject to a beneficial ownership limitation of 9.99%), (ii) 424,191 shares of Common Stock issuable upon exercise of Private Placement Common Warrants (subject to a beneficial ownership limitation of 9.99%), (iii) 101,791 shares of Common Stock issuable upon exercise of AR Warrants (subject to beneficial ownership limitations), (iv) 210,582 shares of Common Stock issuable upon exercise of Private Placement Pre-Funded Warrants (subject to a 9.99% beneficial ownership limitation), and (v) 213,609 shares of Common Stock issuable upon exercise of Registered Pre-Funded Warrants (subject to a 9.99% beneficial ownership limitation). Such Private Placement Common Warrants, New Warrants and Private Placement Pre-Funded Warrants will only be exercisable following stockholder approval.

As the managing members of Nantahala, each of Messrs. Harkey and Mack may be deemed to be a beneficial owner of the securities reported herein held by Nantahala. Nantahala, Mr. Harkey and Mr. Mack have shared dispositive power and voting power over the securities reported herein. The address of Nantahala. Nantahala, Mr. Harkey and Mr. Mack is 130 Main St, New Canaan, Connecticut 06840.

(4) Based on certain information made available to the Company and on the Schedule 13D/A filed jointly with the SEC on March 3, 2025, by (i) Deerfield Private Design Fund V, L.P. ("Deerfield Private Design V"), (ii) Deerfield Mgmt V, L.P. ("Deerfield Mgmt V"), (iii) Deerfield Halthcare Innovations Fund II, L.P. ("Deerfield HIF II"), (iv) Deerfield Mgmt HIF II, L.P. ("Deerfield Mgmt HIF II"), (v) Deerfield Management Company, L.P. ("Deerfield Management"), and (vi) James E. Flynn (collectively, "Deerfield"). Represents (i) 1,247,054 shares of common stock held directly by Deerfield Private Design V and Deerfield HIF II (collectively, the "Funds"), and (ii) an aggregate of 1,385,463 shares of Common Stock issuable upon conversion of shares of Series X Preferred Stock (subject to a 9.99% beneficial ownership limitation) held directly by the Funds, and shares of Common Stock issuable upon exercise of certain warrants (subject to a 9.99% beneficial ownership limitation) that were exercisable as of the Record Date or will become exercisable within 60 days thereafter, held by the Funds.

Excludes an aggregate of 5,146,706 shares of Common Stock issuable upon conversion of Series X Preferred Stock (subject to a 9.99% beneficial ownership limitation), and Common Stock issuable upon exercise of certain warrants. Some of such warrants will only be exercisable following stockholder approval or are subject to a 9.99% beneficial ownership limitation.

Mr. Flynn is the managing member of the general partner of each of Deerfield Mgmt V and Deerfield Mgmt HIF II and Deerfield Management. Deerfield Mgmt V is the general partner of Deerfield Private Design Fund V, L.P. Deerfield Mgmt HIF II is the general partner of Deerfield Healthcare Innovations Fund II, L.P. and Deerfield Management is the investment manager of each Fund. As a result, Deerfield Management and Mr. Flynn have shared voting power and shared dispositive power over the securities held by the Funds, Deerfield Mgmt V has bared voting power and shared dispositive power over the securities held by Deerfield Private Design V and Deerfield Mgmt HIF II shared voting power and shared dispositive power over the securities held by Deerfield HIF II. The address for Deerfield is 345 Park Avenue South, 12th Floor, New York, New York 10010.

(5) Based on certain information made available to the Company and on the Schedule 13G/A filed jointly with the SEC on July 17, 2024, by OrbiMed Israel BioFund GP Limited Partnership ("OrbiMed BioFund"), OrbiMed Israel GP Ltd. ("OrbiMed Israel"), Carl L. Gordon and Erez Chimovits. Represents (i) 1,787,765 shares of Common Stock held by OrbiMed Israel Partners Limited Partnership ("OIP"), and (ii) an aggregate of 59,800 shares of common stock issuable upon conversion of Series X Preferred Stock held by OIP (subject to a 9.99% beneficial ownership limitation) and shares of common stock issuable upon exercise of certain warrants held by OIP (subject to a 9.99% beneficial ownership limitation) that were exercisable as of the Record Date or will become exercisable within 60 days thereafter.

OrbiMed BioFund is the general partner of OIP and OrbiMed Israel is the general partner of OrbiMed BioFund. OrbiMed Israel exercises investment power over the securities held by OrbiMed BioFund through an investment committee comprised of Mr. Gordon and Mr. Chimovits. As a result, OrbiMed Israel, OrbiMed BioFund, Mr. Gordon, and Mr. Chimovits have shared voting power and shared dispositive power over the securities reported herein held by OIP. OrbiMed Israel, OrbiMed BioFund, Mr. Gordon, and Mr. Chimovits may be deemed directly or indirectly, including by reason of their mutual affiliation, to be the beneficial owners of the securities held by OIP. The address of OrbiMed BioFund, OrbiMed Israel and Mr. Chimovits is 89 Medinat Hayehudim St. Building E Herzliya 4614001 Israel. The address of Mr. Gordon is 601 Lexington Avenue, 54th Floor, New York, New York 10022.

- (6) Based on certain information made available to the Company. Represents 1,590,738 shares of Common Stock held by Alyeska Master Fund ("Alyeska") and excludes an aggregate of 725,338 shares of Common Stock issuable upon exercise of certain warrants (subject to a beneficial ownership limitation), as such warrants will only be exercisable following stockholder approval. The address of Alyeska is 77 W. Wacker, Suite 700, Chicago, IL 60601.
- (7) Based on certain information made available to the Company. Represents 1,590,738 shares of Common Stock held by AIGH Investment Partners, LP ("AIGH") and excludes an aggregate of 725,338 shares of Common Stock issuable upon exercise of certain warrants (subject to a beneficial ownership limitation), as such warrants will only be exercisable following stockholder approval. The address of AIGH is 6006 Berkeley Avenue, Baltimore, MD 21209
- (8) Represents (i) 53,056 shares of Common Stock, (ii) 1,875 shares of Common Stock issuable upon exercise of certain warrants and (iii) certain options to purchase 129,123 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.
- (9) Represents (i) 375 shares of Common Stock, (ii) 281 shares of Common Stock issuable upon exercise of certain warrants and (iii) certain options to purchase 16,431 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.
- (10) Represents (i) 31,749 shares of Common Stock and (ii) certain options to purchase 35,294 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.
- (11) Represents (i) 375 shares of Common Stock, (ii) 281 shares of Common Stock issuable upon exercise of certain warrants and (iii) certain options to purchase 13,415 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.
- (12) Represents (i) 500 shares of Common Stock, (ii) 375 shares of Common Stock issuable upon exercise of certain warrants and (iii) certain options to purchase 6,707 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.
- (13) Represents certain options to purchase 1,537 shares of Common Stock that were vested as of the Record Date or will vest within 60 days thereafter.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

BiomX files reports, proxy statements and other information with the SEC as required by the Exchange Act. You can review BiomX electronically filed reports, proxy and information statements on the SEC's web site at http://www.sec.gov or on BiomX's web site at https://www.biomx.com. Information included on BiomX's web site is not a part of this proxy statement.

You should rely only on the information contained in this proxy statement or on information to which BiomX has referred you. BiomX has not authorized anyone else to provide you with any information. A representative of the Company's independent registered public accounting firm, Kesselman & Kesselman, Certified Public Accountants (Isr.), is not expected to be present at the virtual Special Meeting and will therefore not have an opportunity to make a statement or to respond to appropriate questions from our stockholders.

If you have more questions about this proxy statement or how to submit your proxy, or if you need additional copies of this proxy statement or the enclosed proxy card or voting instructions, please contact BiomX's Corporate Secretary at marinaw@biomx.com.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for proxy statements with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as "householding," potentially means extra convenience for stockholders and cost savings for companies.

This year, several brokers with account holders who are our stockholders will be "householding" our proxy materials. A single set of the proxy materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be "householding" communications to your address, "householding" will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in "householding" and would prefer to receive a separate set of proxy materials, please notify your broker or the Company. Direct your written request to: BiomX Inc., 22 Einstein Street, 4th Floor, Ness Ziona 7414003, Israel, Attention: Marina Wolfson.

Stockholders who currently receive multiple copies of the proxy materials at their addresses and would like to request "householding" of their communications should contact their brokers.

STOCKHOLDER PROPOSALS

Pursuant to Rule 14a-8 under the Exchange Act ("Rule 14a-8"), a stockholder who intends to present a proposal at our 2025 annual meeting of stockholders and who wishes the proposal to be included in the proxy statement for the 2025 annual meeting must submit the proposal to us in writing to the attention of our Secretary at BiomX Inc., 22 Einstein St., Floor 4, Ness Ziona, Israel 7414003. The proposal must be received no later than February 17, 2025. However, pursuant to Rule 14a-8, if the 2025 annual meeting is held on a date that is before June 9, 2025, or after August 8, 2025, then a stockholder proposal submitted for inclusion in our proxy statement for the 2025 annual meeting must be received by us a reasonable time before we begin to print and mail our proxy statement for the 2025 annual meeting.

Stockholders wishing to submit proposals to be presented directly at the 2025 annual meeting of stockholders instead of by inclusion in our proxy statement for the 2025 annual meeting must follow the submission criteria set forth in our Bylaws and applicable law concerning stockholder proposals. To be properly brought before the 2025 annual meeting, business either (i) must be specified in a written notice of the 2025 annual meeting (or any supplement thereto) given by or at the direction of the Board or the Chief Executive Officer or Secretary of BiomX, (ii) otherwise properly brought before the 2025 annual meeting by or at the direction of the Board, or (iii) otherwise properly brought before the 2025 annual meeting by a stockholder. In addition to any other applicable requirements, for business to be properly brought before the 2025 annual meeting by a stockholder, the stockholder must have given timely notice thereof in writing to the Secretary of BiomX. To be timely, a stockholder's notice must be delivered to or mailed and received at one of the principal executive office(s) of BiomX, not less than ninety (90) calendar days nor more than one-hundred and twenty (120) calendar days prior to the 2025 annual meeting; provided, however, that in the event that less than forty-five (45) calendar days' notice or prior public disclosure of the date of the 2025 annual meeting is given or made to stockholders, notice by the stockholder to be timely must be so received not later than the close of business on the tenth (10th) business day following the day on which such notice of the date of the 2025 annual meeting was mailed or such public disclosure was made.

For next year's annual meeting, we will be required pursuant to Rule 14a-19 under the Exchange Act to include on our proxy card all nominees for director for whom we have received notice under the rule, which must be received no later than 60 calendar days prior to the anniversary of the Special Meeting. For any such director nominee to be included on our proxy card for next year's annual meeting, notice must be received no later than May 10, 2025. Please note that the notice requirement under Rule 14a-19 is in addition to any applicable notice requirements under any advance notice provisions of our Bylaws, as may be amended.

OTHER MATTERS

Our Board does not know of any other matters to be brought before the Special Meeting. If any other matters not mentioned in this proxy statement are properly brought before the Special Meeting, the individuals named in the enclosed proxy intend to use their discretionary voting authority under the proxy to vote the proxy in accordance with their best judgment on those matters.

BIOMX INC. 22 EINSTEIN ST., FLOOR 4 NESS ZIONA 7414003, ISRAEL



 $\begin{tabular}{ll} \textbf{VOTE BY INTERNET}\\ \textit{Before The Meeting} - \textbf{Go to } \underline{\textbf{www.proxyvote.com}} \ \textbf{or scan the QR Barcode above} \end{tabular}$

Use the Internet to transmit your voting instructions and for electronic delivery of information. Vote by 11:59 p.m. Eastern Time on April 20, 2025. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

 $\textit{During The Meeting} - \textit{Go to } \underline{\textbf{www.virtualshareholdermeeting.com/PHGE2025SM}}$

You may attend the meeting via the Internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and follow the instructions.

VOTE BY PHONE - 1-800-690-6903
Use any touch-tone telephone to transmit your voting instructions. Vote by 11:59 p.m. Eastern Time on April 20, 2025. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL
Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE.	MARK BL	OCKS BE	LOW IN B	LUE OR	BLACK INK	AS FOLLOWS:

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KEEP THIS PORTION FOR YOUR RECORDS DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

віом	X INC.			
				7
Th	e Board of Directors recommends you vote "FOR" Proposals 1 and 2.	For A	Against	Abstain
1.	To approve the exercise of certain warrants into shares of common stock of the Company, par value \$0.0001 per share, in accordance with Section 713 of the NYSE American LLC Listed Company Guide, previously issued in private placements (i) pursuant to that certain Securities Purchase Agreement, dated February 25, 2025, by and among the Company and the investors signatory thereto and (ii) pursuant to that certain Inducement Letter, dated February 25, 2025, by and among the Company and the holders signatory thereto.	0	0	0
2.	To approve the adjournment or postponement of the Special Meeting of Stockholders, if necessary, to continue to solicit votes for Proposal No. 1.	0	0	0
	TE: In their discretion, the proxies are authorized to vote upon such other business as may properly come before the Special Meeting Stockholders on any postponement or adjournment thereof.			
title	ase sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full e as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate partnership name by authorized officer.			
Sig	nature [PLEASE SIGN WITHIN BOX] Date Signature (Joint Owners) Date			

Important Notice Regarding	y tha Availahility	A OF Drove	, Matorials fo	r tha Snac	ial Mootina:
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The Notice and Proxy Statement are available at www.proxyvote.com.

V67056-S11955

BIOMX INC. Special Meeting of Stockholders April 21, 2025 8:00 a.m. Eastern Time This proxy is solicited by the Board of Directors

The stockholder(s) hereby appoint(s) Jonathan Solomon and Marina Wolfson or either of them, as proxies, each with the power to appoint his or her substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of common stock of BIOMX INC. that the stockholder(s) is/are entitled to vote at the Special Meeting of Stockholders to be held virtually at 8:00 a.m., Eastern Time on April 21, 2025, at www.virtualshareholdermeeting.com/PHGE2025SM, and any adjournment or postponement thereof.

This proxy, when properly executed, will be voted as directed herein. If no direction is given, this proxy will be voted "FOR" Proposals 1 and 2 and, in the discretion of the proxies, upon such other matters as may properly come before the Special Meeting of Stockholders.

Continued and to be signed on reverse side.