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

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**SCHEDULE 14A**  
**Proxy Statement Pursuant to Section 14(a) of the  
Securities Exchange Act of 1934**  
**(Amendment No. )**

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- Filed by the Registrant
- Filed by a party other than the Registrant

CHECK THE APPROPRIATE BOX:

<input type="checkbox"/>	Preliminary Proxy Statement
<input type="checkbox"/>	<b>Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))</b>
<input checked="" type="checkbox"/>	Definitive Proxy Statement
<input type="checkbox"/>	Definitive Additional Materials
<input type="checkbox"/>	Soliciting Material under § 240.14a-12



**Assembly Biosciences, Inc.**  
(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

PAYMENT OF FILING FEE (CHECK ALL BOXES THAT APPLY):

<input checked="" type="checkbox"/>	No fee required
<input type="checkbox"/>	Fee paid previously with preliminary materials
<input type="checkbox"/>	Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11

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**ASSEMBLY BIOSCIENCES, INC.**  
**Two Tower Place, 7<sup>th</sup> Floor**  
**South San Francisco, California 94080**

**NOTICE OF SPECIAL MEETING OF STOCKHOLDERS**  
**To Be Held Wednesday, January 31, 2024**

December 21, 2023

**Dear Stockholders:**

You are cordially invited to attend a Special Meeting of Stockholders (the Special Meeting) of Assembly Biosciences, Inc., a Delaware corporation (we, us, Assembly Bio, Assembly or the Company). The Special Meeting will be held on Wednesday, January 31, 2024 at 8:00 a.m. Pacific Standard Time (PST) solely by remote communication (i.e., a virtual-only stockholder meeting) at [www.virtualshareholdermeeting.com/ASMB2024SM](http://www.virtualshareholdermeeting.com/ASMB2024SM). During the meeting, stockholders will be asked to:

1. Approve a series of alternate amendments to our Sixth Amended and Restated Certificate of Incorporation to effect, at the discretion of our Board of Directors (the Board), a reverse stock split of our common stock at a ratio to be determined by the Board within a range of 1-for-7 to 1-for-17 (or any number in between) without reducing the authorized number of shares of the common stock (the Reverse Stock Split Proposal);
2. Approve, subject to certain conditions, the issuance of shares of common stock to Gilead Sciences, Inc. pursuant to Nasdaq Listing Rules 5635(a) and 5635(b) (the Nasdaq Proposal); and
3. Approve an adjournment of the Special Meeting to a later date or dates, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the foregoing proposals (the Adjournment Proposal).

These matters are more fully described in the proxy statement accompanying this notice.

Our Board has fixed the close of business on December 8, 2023 as the record date for the determination of stockholders entitled to notice of and to vote at the Special Meeting and any adjournment or postponement thereof. See the attached proxy statement for information on how to attend the virtual Special Meeting and vote during the meeting.

To ensure your representation at the Special Meeting, you are requested to submit your vote as instructed in the Notice of Internet Availability of Proxy Materials that will be sent to you. You may also request a paper proxy card at any time on or before January 17, 2024 to submit your vote by mail. If you attend and vote at the Special Meeting your proxy will not be used.

**Important Notice Regarding the Availability of Proxy Materials for the Special Meeting to be held solely by remote communication at [www.virtualshareholdermeeting.com/ASMB2024SM](http://www.virtualshareholdermeeting.com/ASMB2024SM) on Wednesday, January 31, 2024 at 8:00 a.m. PST.**

**The proxy statement is available at: [www.proxyvote.com](http://www.proxyvote.com).**

[Table of Contents](#)

We hope that you will attend the virtual Special Meeting, and we very much appreciate your continuing interest in Assembly Bio.

By Order of the Board of Directors,



Jason A. Okazaki  
Chief Executive Officer and President

**You are cordially invited to attend the Special Meeting by remote communication. Whether or not you expect to attend the Special Meeting, please vote over the Internet using your 16-digit control number as instructed in your Notice of Internet Availability of Proxy Materials or proxy card or vote by mail by requesting a printed copy of the proxy card. Even if you have voted by proxy, you may still vote at the Special Meeting if you attend by remote communication. Please note, however, that if you hold your shares through a broker or nominee and you wish to vote at the Special Meeting, you must obtain your control number from your broker or nominee to vote.**



**ASSEMBLY BIOSCIENCES, INC.**  
**Two Tower Place, 7<sup>th</sup> Floor**  
**South San Francisco, California 94080**

**PROXY STATEMENT  
FOR THE SPECIAL MEETING OF STOCKHOLDERS**

**JANUARY 31, 2024**

**INFORMATION CONCERNING SOLICITATION AND VOTING**

The Board of Directors (the Board) of Assembly Biosciences, Inc., a Delaware corporation (we, us, Assembly Bio, Assembly or the Company), is soliciting your proxy to vote at the Special Meeting of Stockholders (the Special Meeting) to be held on Wednesday, January 31, 2024 at 8:00 a.m. Pacific Standard Time (PST) solely by remote communication (i.e., a virtual-only stockholder meeting) at [www.virtualshareholdermeeting.com/ASMB2024SM](http://www.virtualshareholdermeeting.com/ASMB2024SM). Any adjournments or postponements of the meeting will also be held by remote communication at the same location.

You are invited to attend the Special Meeting to vote on the proposals described in this proxy statement. However, you do not need to attend the meeting to vote your shares. Instead, you may follow the instructions in the Notice of Internet Availability of Proxy Materials (the Proxy Availability Notice) described below to submit your proxy through the Internet, or you may vote by mail by using the proxy card provided or requesting a printed copy of the proxy card.

We sent the Proxy Availability Notice on or about December 21, 2023 to our stockholders of record and beneficial owners as of December 8, 2023, the record date for the Special Meeting. The proxy materials, including this proxy statement, proxy card or voting instruction card, are being distributed and made available on or about December 21, 2023. This proxy statement contains important information for you to consider when deciding how to vote on the matters brought before the Special Meeting. Please read it carefully.

This proxy statement and the Proxy Availability Notice contain instructions for accessing and reviewing our proxy materials on the Internet and for voting by proxy over the Internet, by phone or by mail. The Proxy Availability Notice and the proxy card also will provide instructions on how you can elect to receive future proxy materials electronically or in printed form by mail. If you choose to receive future proxy materials electronically, you will receive an email in the future with instructions containing a link to the proxy materials and a link to the proxy voting site. Your election to receive proxy materials electronically or in printed form by mail will remain in effect until you terminate such election. You will need to obtain your own Internet access if you choose to access the proxy materials and/or vote over the Internet. If you prefer to receive printed copies of our proxy materials, the Proxy Availability Notice contains instructions on how to request the materials by mail. For stockholders who have elected to receive proxy materials electronically, you will not receive printed copies of the proxy materials unless you request them. If you elect to receive the materials by mail, you may also vote by proxy on the proxy card or voter instruction card that you will receive in response to your request.

Choosing to receive future proxy materials electronically will allow us to provide you with the information you need more rapidly, will save us the cost of printing and mailing documents to you and will conserve natural resources.

**TABLE OF CONTENTS**

	<u>Page</u>
<a href="#">QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING</a>	1
<a href="#">PROPOSAL NO. 1: THE REVERSE STOCK SPLIT PROPOSAL</a>	8
<a href="#">General</a>	8
<a href="#">Reasons for the Reverse Stock Split</a>	8
<a href="#">Board Discretion to Implement or Abandon Reverse Stock Split</a>	9
<a href="#">Criteria to be Used for Determining Whether to Implement Reverse Stock Split</a>	10
<a href="#">Effects of the Reverse Stock Split</a>	10
<a href="#">Certain Risks and Potential Disadvantages Associated with the Reverse Stock Split</a>	12
<a href="#">Effective Date</a>	12
<a href="#">Cash Payment In Lieu of Fractional Shares</a>	13
<a href="#">No Appraisal Rights</a>	13
<a href="#">Shares Held in Book-Entry and Through a Broker, Bank or Other Holder of Record</a>	13
<a href="#">U.S. Federal Income Tax Considerations</a>	13
<a href="#">Vote Required</a>	15
<a href="#">Recommendation of the Board of Directors</a>	15
<a href="#">PROPOSAL NO. 2: THE NASDAQ PROPOSAL</a>	16
<a href="#">General</a>	16
<a href="#">Reasons for Seeking Stockholder Approval</a>	16
<a href="#">Voting Exclusion Statement</a>	16
<a href="#">Required Vote</a>	16
<a href="#">Recommendation of the Board of Directors</a>	16
<a href="#">PROPOSAL NO. 3: THE ADJOURNMENT PROPOSAL</a>	17
<a href="#">General</a>	17
<a href="#">Required Vote</a>	17
<a href="#">Recommendation of the Board of Directors</a>	17
<a href="#">SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS</a>	18
<a href="#">DEADLINE FOR STOCKHOLDER PROPOSALS FOR THE 2024 ANNUAL MEETING OF STOCKHOLDERS</a>	20
<a href="#">DELIVERY OF DOCUMENTS TO STOCKHOLDERS SHARING AN ADDRESS</a>	20
<a href="#">OTHER MATTERS</a>	21
<a href="#">APPENDIX A</a>	A-1

## QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

### **Why did I receive the Notice of Internet Availability of Proxy Materials instead of a full set of proxy materials?**

In accordance with the rules and regulations adopted by the U.S. Securities and Exchange Commission (SEC), we have elected to provide access to our proxy materials over the Internet instead of mailing a printed copy of our proxy materials to each stockholder. Accordingly, we sent a Proxy Availability Notice on or about December 21, 2023 to most stockholders of record entitled to vote at the Special Meeting. Stockholders may access the proxy materials on a website referred to in the Proxy Availability Notice commencing on or about December 21, 2023 or may request a printed set of the proxy materials be sent to them by following the instructions in the Proxy Availability Notice.

### **Why did I receive a full set of proxy materials and the Proxy Availability Notice?**

We are providing paper copies of the proxy materials to stockholders who have previously requested to receive them in paper form or for whom an election to receive proxy materials electronically by email or over the Internet are not on file. If you would like to reduce the environmental impact and the costs incurred by us in mailing proxy materials, you may elect to receive all future proxy materials electronically by email or over the Internet. To sign up for electronic delivery, please follow the instructions provided with your proxy materials and on your proxy card or voting instruction card for using the Internet and, when prompted, indicate that you agree to receive or access future stockholder communications electronically. Alternatively, you can go to [www.proxyvote.com](http://www.proxyvote.com) and enroll for online delivery of Annual Meeting and proxy materials.

### **What does it mean if I receive more than one Proxy Availability Notice?**

If you receive more than one Proxy Availability Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on each Proxy Availability Notice to ensure that all of your shares are voted. All of your shares may be voted at [www.proxyvote.com](http://www.proxyvote.com) regardless of which account they are registered or held in.

### **How do I attend the Special Meeting?**

You will not be able to attend the Special Meeting in person at a physical location because it is being held in a virtual only format. However, the Special Meeting has been designed to provide stockholders comparable rights and opportunities to participate as they would have at an in-person meeting, and stockholders of record as of the close of business on December 8, 2023 will be able to participate, vote their shares and ask questions during the meeting by audio webcast. To be admitted to the virtual-only Special Meeting, you should visit [www.virtualshareholdermeeting.com/ASMB2024SM](http://www.virtualshareholdermeeting.com/ASMB2024SM) and enter the 16-digit control number found on your Proxy Availability Notice.

Additional details on attending and participating in the virtual-only Special Meeting:

- Access the meeting platform beginning at 7:45 a.m. PST on January 31, 2024.
- Vote during the Special Meeting by following the instructions available on the meeting website during the meeting.
- Submit a question during the meeting by visiting [www.virtualshareholder.com/ASMB2024SM](http://www.virtualshareholder.com/ASMB2024SM), entering your 16-digit control number and submitting the question in the “Ask a Question” field. Pertinent questions will be answered during the meeting, subject to time constraints.
- If you encounter any difficulties while accessing the virtual-only meeting, contact the technical support number that will be posted on the Virtual Shareholder Meeting log-in page. Technical support will be available beginning at 7:30 a.m. PST on January 31, 2024 and will remain available until the Special Meeting has ended.

## [Table of Contents](#)

Whether or not you attend the Special Meeting, we urge you to vote and submit your proxy in advance of the meeting by one of the methods described in this proxy statement.

### **Who can vote at the Special Meeting?**

Only stockholders of record at the close of business on December 8, 2023 will be entitled to vote at the Special Meeting. On the record date, there were 65,793,401 shares of common stock outstanding and entitled to vote. A list of stockholders of record entitled to vote will be open to inspection by stockholders for any purpose relevant to the Special Meeting for ten days before the Special Meeting during normal business hours at our corporate office.

#### *Stockholder of Record: Shares Registered in Your Name*

If, on December 8, 2023, your shares were registered directly in your name with our transfer agent, Equiniti Trust Company, LLC, then you are a stockholder of record. As a stockholder of record, you may vote while attending the meeting or by proxy. Whether or not you plan to attend the meeting, we urge you to fill out and return your proxy card or vote by proxy over the telephone or Internet as instructed below to ensure your vote is counted.

#### *Beneficial Owner: Shares Registered in the Name of a Broker or Bank*

If, on December 8, 2023, your shares were held not in your name, but rather in an account at a broker, bank or other similar organization, then you are the beneficial owner of shares held in “street name” and the Proxy Availability Notice is being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the Special Meeting. As a beneficial owner, you have the right to direct your broker or other agent regarding how to vote the shares in your account and should follow the instructions provided by your broker, bank or other agent to vote your shares. You are also invited to attend the Special Meeting.

### **What am I voting on?**

There are three matters scheduled for a vote:

1. Approval of a series of alternative amendments to our Sixth Amended and Restated Certificate of Incorporation to effect, at the discretion of our Board of Directors, a reverse stock split of our common stock at a ratio to be determined by the Board within a range of 1-for-7 to 1-for-17 (or any number in between) without reducing the authorized number of shares of the common stock (the Reverse Stock Split Proposal);
2. Approval of, subject to certain conditions, the issuance of shares of common stock to Gilead Sciences, Inc. pursuant to Nasdaq Listing Rules 5635(a) and 5635(b) (the Nasdaq Proposal); and
3. Approval of an adjournment of the Special Meeting to a later date or dates, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the foregoing proposals (the Adjournment Proposal).

### **Why does Assembly Bio need to hold these votes?**

#### *The Reverse Stock Split Proposal*

On September 27, 2023, we received a letter from the Listing Qualifications Department of the Nasdaq Stock Market notifying us that, as the bid price for our common stock had closed below \$1.00 per share for the last 30 consecutive business days, we were not in compliance with Nasdaq Listing Rule 5450(a)(1), which is the minimum bid price requirement for continued listing on the Nasdaq Global Select Market.

## [Table of Contents](#)

In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been provided a 180-calendar day period, or until March 25, 2024, to regain compliance with the minimum bid price requirement. The continued listing standard will be met if the closing bid price of our common stock is at least \$1.00 per share for a minimum of ten consecutive business days during the 180-calendar day period.

Our Board has determined that an amendment to our Sixth Amended and Restated Certificate of Incorporation to effect the Reverse Stock Split may be necessary to promote the continued listing of our common stock on the Nasdaq Global Select Market and is in the best interests of our stockholders. If approved and implemented, the Board will select a reverse stock split ratio within a range of 1-for-7 to 1-for-17 (or any number in between), at a later date based on various factors, including the then prevailing market conditions and the existing and expected per share trading prices of our common stock. Pursuant to the law of our state of incorporation, Delaware, our Board must adopt any amendment to our Sixth Amended and Restated Certificate of Incorporation and submit the amendment to stockholders for approval. Accordingly, our Board of Directors is requesting your proxy to vote “FOR” the Reverse Stock Split Proposal.

In addition to bringing the per share trading price of our common stock back above \$1.00, we also believe that the Reverse Stock Split will make our common stock more attractive to a broader range of institutional and other investors, as we have been advised that the current per share trading price of our common stock may affect its acceptability to certain institutional investors, professional investors and other members of the investing public. Many brokerage houses and institutional investors have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers. In addition, some of those policies and practices may function to make the processing of trades in low-priced stocks economically unattractive to brokers.

The Reverse Stock Split would not change the number of authorized shares of our common stock. Therefore, the number of shares remaining available for issuance in the future would increase. These additional shares would be available for issuance from time to time for corporate purposes including capital-raising transactions and acquisitions.

### *The Nasdaq Proposal*

In connection with us entering into an Option, License and Collaboration Agreement with Gilead Sciences, Inc. (Gilead), we entered into a Common Stock Purchase Agreement (the Stock Purchase Agreement) with Gilead, pursuant to which Gilead purchased 13,073,668 shares of our common stock, which constituted 19.9% of our then-outstanding common stock.

Nasdaq Listing Rules 5635(a) and 5635(b) both require stockholder approval in certain circumstances. Rule 5635(a), among other things, requires stockholder approval if due to the potential issuance of common stock other than a public offering for cash, the common stock to be issued will be equal to or in excess of 20% of the number of shares of common stock outstanding before the issuance of the common stock. In the case of Rule 5635(b), stockholder approval is required prior to the issuance of securities if the potential issuance will result in a change of control of the company, which for purposes of the Nasdaq Listing Rules occurs when a stockholder holds 20% or more of the company’s outstanding common stock or voting power and such voting power would be the largest ownership position.

If we complete an equity financing (or series of financings) prior to July 15, 2024 that results in at least \$30 million of proceeds to us, then subject to the approval of the Nasdaq Proposal, we may require Gilead to purchase additional shares of common stock from us that results in Gilead owning 29.9% of our then-outstanding shares of common stock at a 35% premium equal to the lesser of (1) a 35% premium to the 30-day volume weighted average price immediately prior to the date of purchase or (2) a 35% premium to the 30-day volume weighted average price immediately prior to delivery by Gilead of notice of the anticipated closing date.



## [Table of Contents](#)

Regardless of the purchase price, Gilead's increased investment would provide additional funds for clinical trials, nonclinical studies, research and development and general corporate purposes.

### **What if another matter is properly brought before the meeting?**

The Board knows of no other matters that will be presented for consideration at the Special Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment.

### **How do I vote?**

For each of the matters to be voted on, you may vote "FOR" or "AGAINST," or you may abstain from voting.

The procedures for voting depend upon whether your shares are registered in your name or are held by a bank, broker or other nominee:

#### *Stockholder of Record: Shares Registered in Your Name*

If you are a stockholder of record, you may vote at the Special Meeting, vote by proxy over the Internet, vote by proxy over the telephone or vote by proxy using a proxy card that we have provided or will provide upon request. Whether or not you plan to attend the meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend and vote at the meeting even if you have already voted by proxy.

- To vote at the meeting, attend the Special Meeting, and follow the instructions available on the meeting website during the meeting.
- To vote over the Internet, go to [www.proxyvote.com](http://www.proxyvote.com) to complete an electronic proxy card. You will be asked to provide the company control number from your proxy card or Proxy Availability Notice. Your vote must be received by 11:59 p.m. Eastern Standard Time (EST) on January 30, 2024 to be counted.
- To vote over the telephone, dial toll-free +1.800.690.6903 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company control number from your proxy card or Proxy Availability Notice. Your vote must be received by 11:59 p.m. EST on January 30, 2024 to be counted.
- To vote using a proxy card, complete, sign and date the proxy card and return it pursuant to the instructions provided. Your vote must be received by January 30, 2024 to be counted.

#### *Beneficial Owner: Shares Registered in the Name of Broker or Bank*

If you are a beneficial owner of shares registered in the name of your broker, bank or other nominee, you should have received a Proxy Availability Notice containing a voting instruction form from that organization rather than from us. In order to provide voting instructions to the holder of record of your shares, please refer to the materials forwarded by your broker, bank, or other nominee.

- To vote at the Special Meeting, contact your broker, bank or other nominee to obtain your control number and follow the instructions on the meeting website.
- To vote over the Internet, go to [www.proxyvote.com](http://www.proxyvote.com) to complete an electronic proxy. You will be asked to provide your sixteen-digit control number from your voting instruction form. Your vote must be received by 11:59 p.m. EST on January 30, 2024 to be counted.
- To vote over the telephone, dial toll-free +1.800.454.8683 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company control number from your voting instruction form or Proxy Availability Notice. Your vote must be received by 11:59 p.m. EST on January 30, 2024 to be counted.

## [Table of Contents](#)

- To vote using the voting instruction form accompanying the Proxy Availability Notice, complete, sign and date the voting instruction form and return it pursuant to the instructions provided. Your vote must be received by January 30, 2024 to be counted.

**Internet proxy voting is provided to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your Internet access, such as usage charges from Internet access providers and telephone companies.**

### **How many votes do I have?**

You have one vote for each share of common stock you owned as of December 8, 2023 for each matter that is voted upon at the Special Meeting.

### **Who is paying for this proxy solicitation?**

We will pay for the entire cost of soliciting proxies. In addition, we have retained D.F. King & Co., Inc. to aid in the solicitation of proxies by mail, telephone, facsimile, email and personal solicitation. For these services, we will pay D.F. King & Co., Inc. a fee of \$10,500 plus reasonable expenses.

Also, our directors and employees may solicit proxies in person, by telephone or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks and other nominees for their reasonable out-of-pocket expenses for forwarding proxy materials to beneficial owners and seeking instruction with respect thereto.

### **Can I vote my shares by filling out and returning the Proxy Availability Notice?**

No. The Proxy Availability Notice does, however, provide instructions on how to vote by Internet, mail (by requesting a paper proxy card or voting instruction card), and during the Special Meeting.

If you receive a proxy statement and a paper proxy card together with the Proxy Availability Notice, the paper proxy card may be used to vote your shares.

### **Can I change my vote or revoke my proxy after submitting my proxy?**

*Stockholder of Record: Shares Registered in Your Name*

Yes. You can change your vote or revoke your proxy at any time before the deadline to vote. If you are the record holder of your shares, you may change your vote or revoke your proxy in any one of the following ways:

- You may grant a subsequent proxy by telephone or over the Internet.
- You may submit another properly completed proxy card with a later date.
- You may send a timely written notice that you are revoking your proxy to our Corporate Secretary at Two Tower Place, 7<sup>th</sup> Floor, South San Francisco, California 94080.
- You may attend and vote at the Special Meeting. Simply attending the meeting will not, by itself, revoke your proxy.

Your most recent vote (prior to the deadline) by Internet, telephone or proxy card or vote at the Special Meeting will be the one that is counted.

## Table of Contents

### *Beneficial Owner: Shares Registered in the Name of Broker, Bank*

Yes. You can change your vote or revoke your voting instruction form at any time before the deadline to vote. If your shares are held by your broker or bank as a nominee or agent, you should follow the instructions provided by your broker, bank or other nominee. Note that you may also revoke your proxy in any one of the following ways:

- You may grant a subsequent voting instruction over the Internet or by telephone.
- You may attend and vote at the Special Meeting by obtaining your control number from your broker, bank or other nominee. Simply attending the meeting will not, by itself, revoke your voting instruction form.

Your most current vote (prior to the deadline) by voting instruction form, telephone or Internet proxy or vote at the Special Meeting will be the one that is counted.

### **What are “broker non-votes”?**

Broker non-votes occur when a beneficial owner of shares held in “street name” does not give voting instructions to the broker, bank or other nominee holding the shares as to how to vote on matters deemed “non-routine.” Generally, if shares are held in street name, the beneficial owner of the shares is entitled to give voting instructions to the broker, bank or other nominee holding the shares. If the beneficial owner does not provide voting instructions, the broker, bank or other nominee can still vote the shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine” matters.

The only “routine” matters on the agenda for the Special Meeting are Proposal No. 1—The Reverse Stock Split Proposal and Proposal No. 3—The Adjournment Proposal. Accordingly, the “non-routine” matter on the agenda for the Special Meeting is Proposal No. 2—The Nasdaq Proposal. Therefore, it is critical that you indicate your vote on this proposal if you want your vote to be counted.

### **How are votes counted?**

Votes will be counted by the inspector of elections appointed for the meeting.

You may vote “FOR” or “AGAINST” or you may abstain from voting. Neither abstentions nor broker non-votes will have any effect on the votes for any of the proposals, but abstentions and broker non-votes will be counted to determine whether a quorum is present at the Special Meeting. With respect to Proposal No. 2, no votes “FOR” cast by Gilead Sciences, Inc. will be counted.

### **What if I return a proxy card or otherwise vote but do not make specific choices?**

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted:

- “FOR” the approval of the Reverse Stock Split Proposal;
- “FOR” the approval of the Nasdaq Proposal; and
- “FOR” the approval of the Adjournment Proposal.

### **What is the quorum requirement?**

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding one-third (1/3) of the outstanding shares entitled to vote as of the record date are present at the virtual Special Meeting or represented by proxy. On the record date, there were 65,793,401 shares of common stock

## Table of Contents

outstanding and entitled to vote. As a result, the holders of 21,931,134 shares must be present in person or represented by proxy at the Special Meeting for there to be a quorum.

Your shares will be counted towards a quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank or other nominee) by January 30, 2024 or if you vote at the Special Meeting. Abstentions and broker non-votes will be counted toward the quorum requirement. If there is no quorum, the holders of a majority of shares present at the Special Meeting or represented by proxy may adjourn the Special Meeting to another date.

Once a share is represented for any purpose at the Special Meeting, it is deemed present for quorum purposes for the remainder of the meeting and any adjournment thereof unless a new record date is set for the adjournment.

### **How many votes are needed to approve each proposal?**

Assuming the presence of a quorum at the Special Meeting, the following sets forth the votes necessary for each of the proposals being submitted to the stockholders:

<u>Proposal</u>	<u>Description</u>	<u>Vote Required</u>	<u>Discretionary Voting Allowed</u>
No. 1	The Reverse Stock Split Proposal	Majority of Votes Cast	Yes
No. 2	The Nasdaq Proposal	Majority of Votes Cast	No
No. 3	The Adjournment Proposal	Majority of Votes Cast	Yes

Adoption of Proposal No. 1, Proposal No. 2 and Proposal No. 3 requires the affirmative vote of the majority of votes cast. Abstentions and broker non-votes are not considered votes cast and will have no effect on the vote for these proposals.

### **How can I find out the results of the voting at the Special Meeting?**

Preliminary voting results will be announced at the Special Meeting. In addition, final voting results will be reported in a Current Report on Form 8-K that we expect to file within four business days after the Special Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Special Meeting, we intend to file a Form 8-K to report preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to report the final results.

### **What proxy materials are available on the Internet?**

The proxy statement is available free of charge at [www.proxyvote.com](http://www.proxyvote.com).

## **CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

This proxy statement contains forward-looking statements relating to future events that involve known and unknown risks, uncertainties and other factors that could cause our actual results, levels of activity, performance or achievement to differ materially from those expressed or implied by these forward-looking statements.

Statements that include the words may, will, would, could, should, might, believes, hopes, estimates, projects, potential, expects, plans, anticipates, intends, continues, forecast, designed, goal or the negative of those words or other comparable words, that express uncertainty, are forward-looking statements. We intend such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended (the Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

## PROPOSAL NO. 1: THE REVERSE STOCK SPLIT PROPOSAL

### General

Our Board has approved a series of proposed amendments to our Sixth Amended and Restated Certificate of Incorporation (the Certificate of Incorporation), that would effect a reverse stock split of our common stock at a ratio to be determined by the Board within a range of 1-for-7 to 1-for-17 (or any number in between) without reducing the authorized number of shares of the common stock. We refer to each of the alternative amendments in this Proxy Statement as a “Reverse Stock Split, or collectively as the Reverse Stock Splits.”

The effectiveness of any one of these amendments and the abandonment of the other amendments, or the abandonment of all of these amendments, will be determined by the Board following the Special Meeting and prior to our Annual Meeting of Stockholders to be held in 2024 (the 2024 Annual Meeting). The Board has declared these proposed amendments to be advisable and has recommended that these proposed amendments be presented to the Company’s stockholders for approval.

Upon receiving stockholder approval of the proposed amendments, the Board will have the sole discretion, until the 2024 Annual Meeting, to elect, as it determines to be in the best interests of the Company and its stockholders, whether to effect a reverse stock split and, if so, the number of shares—7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17—of common stock that will be combined into one share of common stock. The Board believes that stockholder approval of this range of selected reverse split ratios (as opposed to approval of a single reverse split ratio) provides the Board with maximum flexibility to achieve the purposes of a reverse stock split and, therefore, is in the best interests of the Company and its stockholders.

If the Board determines to effect one of the alternative Reverse Stock Splits by filing the applicable amendment to the Certificate of Incorporation with the Secretary of State of the State of Delaware (the Delaware Secretary of State), the Certificate of Incorporation would be amended accordingly, and all other amendments will be abandoned. Approval of the Reverse Stock Splits will authorize the Board in its discretion to effectuate a Reverse Stock Split in any of the ratios described above, or not to effect any of the Reverse Stock Splits. The text of the form of amendments to the Certificate of Incorporation, one of which would be filed with the Delaware Secretary of State to effect the Reverse Stock Split, are set forth in Appendix A to this Proxy Statement. However, such text is subject to amendment to include such changes as may be required by the office of the Delaware Secretary of State or as the Board deems necessary and advisable to effect the Reverse Stock Split.

If the Board elects to effect a Reverse Stock Split following stockholder approval, for Reverse Stock Splits in the range of 1-for-7 to 1-for-17, the number of issued and outstanding shares of common stock would be reduced in accordance with a reverse split ratio selected by the Board from among those set forth in this proposal. Except for adjustments that may result from the treatment of fractional shares as described below, each stockholder will hold the same percentage of outstanding common stock immediately following the Reverse Stock Split as such stockholder held immediately prior to the Reverse Stock Split. The par value of the common stock would remain unchanged at \$0.001 per share. The number of shares of common stock underlying outstanding equity awards and available for future awards under our equity incentive plans as well as the number of shares issuable upon exercise of outstanding warrants would also be proportionately reduced in the same manner due to the Reverse Stock Split. The Reverse Stock Split would not change the number of authorized shares of common stock. There are currently no specific plans, arrangements, agreements or understandings for the issuance of the additional authorized but unissued and unreserved shares of common stock that would be created by the Reverse Stock Split.

### Reasons for the Reverse Stock Split

Although the proposed Reverse Stock Split will not have the effect of increasing our market capitalization, we believe that implementing one of the alternative Reverse Stock Splits could provide benefits to us and our existing stockholders in a number of ways, including:

- *Maintaining our listing on the Nasdaq Global Select Market.* Our common stock is currently listed for trading on the Nasdaq Global Select Market under the symbol “ASMB.” The continued listing of our

common stock on Nasdaq is subject to our compliance with a number of listing standards. On September 27, 2023, we received a letter from the Listing Qualifications Department of the Nasdaq Stock Market notifying us that, as the bid price for our common stock had closed below \$1.00 per share for the last 30 consecutive business days, we were not in compliance with Nasdaq Listing Rule 5450(a)(1), which is the minimum bid price requirement for continued listing on the Nasdaq Global Select Market. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been provided a 180-calendar day period, or until March 25, 2024, to regain compliance with the minimum bid price requirement. The continued listing standard will be met if the closing bid price of our common stock is at least \$1.00 per share for a minimum of ten consecutive business days during the 180-calendar day period.

The Board has considered the potential harm to the Company and its stockholders should Nasdaq delist our common stock from the Nasdaq Global Select Market. Delisting could adversely affect the liquidity of our common stock because alternatives, such as the OTC Bulletin Board and the pink sheets, are generally considered to be less liquid and efficient markets. An investor likely would find it less convenient to sell, or to obtain accurate quotations in seeking to buy, our common stock on an over-the-counter market. Many investors likely would not buy or sell our common stock due to difficulty in accessing over-the-counter markets, policies preventing them from trading in securities not listed on a national exchange or other reasons. Current contractual arrangements also require that the Company take commercially reasonable efforts to maintain its listing. The Board believes that a reverse stock split is a potentially effective means for us to regain compliance and to avoid the adverse consequences of our common stock being delisted from the Nasdaq Global Select Market by producing the immediate effect of increasing the bid price for our common stock.

- *Stock Price Volatility.* We have been advised by our financial advisors that a higher stock price may increase the acceptability of our common stock to investors who may not find shares of our common stock attractive at the current market price due to the trading volatility often associated with stocks below certain prices.
- *Transaction Costs.* Investors also may be dissuaded from purchasing stocks below certain prices because the brokerage commissions, as a percentage of the total transaction value, tend to be higher for such low-priced stocks.
- *Stock Price Requirements.* We also believe that the Reverse Stock Split will make our common stock more attractive to a broader range of institutional and other investors, as we have been advised that the current per share trading price of our common stock may affect its acceptability to certain institutional investors, professional investors and other members of the investing public. Many brokerage houses and institutional investors have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers. In addition, some of those policies and practices may function to make the processing of trades in low-priced stocks economically unattractive to brokers.

#### **Board Discretion to Implement or Abandon Reverse Stock Split**

If the alternative Reverse Stock Splits are approved by the Company's stockholders at the Special Meeting, the actual Reverse Stock Split will be effected, if at all, only upon a subsequent determination by the Board that one of the Reverse Stock Splits is, at that time, in the best interests of the Company and its stockholders. Such determination will be based upon many factors, including the trading price of our common stock relative to the Nasdaq minimum listing requirements, as well as those other factors described in the following paragraph. Notwithstanding approval of the Reverse Stock Splits by the stockholders, the Board may, in its sole discretion, abandon all of the proposed amendments and determine prior to the effectiveness of any filing with the Delaware Secretary of State not to effect any of the Reverse Stock Splits. If the Board decides not to implement any of the Reverse Stock Splits before the 2024 Annual Meeting, further stockholder approval would be required prior to implementing any reverse stock split.

### **Criteria to be Used for Determining Whether to Implement Reverse Stock Split**

If the stockholders approve the Reverse Stock Splits, the Board will be authorized to proceed with any of the alternative Reverse Stock Splits that it selects in its sole discretion. In determining whether to proceed with a Reverse Stock Split, the Board expects to consider a number of factors, including market conditions, existing and expected trading prices of our common stock, the Nasdaq Global Select Market listing requirements, our additional funding requirements and the amount of our authorized but unissued common stock. The Board does not intend for this transaction to be the first step in a series of plans or proposals of a “going private” transaction within the meaning of Rule 13e-3 of the Exchange Act.

### **Effects of the Reverse Stock Split**

After any of the Reverse Stock Splits, each stockholder will own a reduced number of shares of common stock. This would affect all of the Company’s stockholders uniformly and would not affect any stockholder’s percentage ownership in the Company, except to the extent that the Reverse Stock Split results in a stockholder owning a fractional share as described below. The number of stockholders of record would not be affected by the Reverse Stock Split, except to the extent that any stockholder holds only a fractional share interest and receives cash for such interest after the Reverse Stock Split.

Proportionate voting rights and other rights of the holders of common stock would not be affected by the Reverse Stock Split (other than as a result of the payment of cash in lieu of fractional shares as described below). For example, a holder of 5% of the voting power of the outstanding shares of common stock immediately prior to the Reverse Stock Split would continue to hold 5% of the voting power of the outstanding shares of common stock after the Reverse Stock Split.

Our Certificate of Incorporation presently authorizes 150,000,000 shares of common stock and 5,000,000 shares of preferred stock. As of December 1, 2023, approximately 44% of our authorized shares of common stock are issued and outstanding and approximately 10% of our authorized shares of common stock are reserved for issuance under our various equity incentive plans, which leaves only approximately 46% of our authorized shares of common stock available for future issuance. The Reverse Stock Split would not change the number of authorized shares of common stock or preferred stock. Therefore, because the number of issued and outstanding shares of common stock would decrease, the number of shares remaining available for issuance by us in the future would increase. These additional shares would be available for issuance from time to time for corporate purposes such as issuances of common stock in connection with capital-raising transactions and acquisitions of companies or other assets, as well as for issuance upon conversion or exercise of securities such as convertible debt, warrants or options convertible into or exercisable for common stock. We believe that the availability of the additional shares will provide us with flexibility to meet business needs as they arise, to take advantage of favorable opportunities, and to respond effectively in a changing corporate environment. If we issue additional shares for any of these purposes, the aggregate ownership interest of our current stockholders, and the interest of each such existing stockholder, would be diluted, possibly substantially. We regularly consider our capital requirements and may conduct securities offerings, including equity and/or equity linked offerings, in the future. There are currently no specific plans, arrangements, agreements, or understandings for the issuance of the additional authorized but unissued and unreserved shares of common stock that would be created by the Reverse Stock Split.

The increase in the number of shares of authorized but unissued and unreserved common stock will have an “anti-takeover effect” by permitting the issuance of shares to purchasers who might oppose a hostile takeover bid or oppose any efforts to amend or repeal certain provisions of the Certificate of Incorporation or our Amended and Restated Bylaws (the Bylaws). The increased number of available authorized but unissued shares as a result of the Reverse Stock Split would give the Company’s management more flexibility to resist or impede a third-party takeover bid that provides an above-market premium that is favored by a majority of the independent stockholders. Although not designed or intended for such purposes, the effect of the increased available shares

## Table of Contents

might be to make more difficult or to discourage an attempt to take over or otherwise acquire control of the Company (for example, by permitting issuances that would dilute the stock ownership of a person or entity seeking to effect a change in the composition of the board of directors or contemplating a tender offer or other change in control transaction). Any such anti-takeover effect of a reverse stock split would be in addition to existing anti-takeover provisions of the Certificate of Incorporation and the Bylaws.

Our Board is not presently aware of any attempt, or contemplated attempt, to acquire control of the Company, and the Reverse Stock Split Proposal is not part of any plan by our Board to recommend or implement a series of anti-takeover measures.

The Reverse Stock Split would reduce the number of shares of common stock available for issuance under our employee equity plans, including the Company's 2018 Stock Incentive Plan (the 2018 Plan), Amended and Restated 2014 Stock Incentive Plan (the 2014 Plan) and the Amended and Restated 2018 Employee Stock Purchase Plan (the 2018 ESPP), in each case in proportion to the reverse split ratio of the Reverse Stock Split. On December 8, 2023 the number of shares of common stock authorized for issuance but unissued under the 2018 Plan, the 2014 Plan and the 2018 ESPP were 9,422,095, 2,541,038 and 644,237, respectively.

The Reverse Stock Split would reduce the number of shares of common stock available for issuance under our 2017 Inducement Award Plan, 2019 Inducement Award Plan and our 2020 Inducement Award Plan in proportion to the reverse split ratio of the Reverse Stock Split. On December 8, 2023, there were no shares authorized for issuance but unissued under any of these plans.

The Company also had 11,634,849 shares of common stock subject to outstanding stock awards as of December 8, 2023. Under the terms of the various instruments governing the Company's outstanding stock awards, the Reverse Stock Split will effect a reduction in the number of shares of common stock issuable upon the exercise of such stock awards in proportion to the reverse split ratio of the Reverse Stock Split. The Reverse Stock Split will effect a proportionate increase in the exercise price of the Company's outstanding stock options. In connection with the Reverse Stock Split, the number of shares of common stock issuable upon exercise or conversion of outstanding stock awards will be rounded down to the nearest whole share and the exercise prices will be rounded up to the nearest cent, and no cash payment will be made in respect of such rounding.

The following table contains approximate information relating to the common stock as of December 8, 2023 before and after giving effect to a hypothetical Reverse Stock Split of 1-for-7, 1-for-12 and 1-for-17. These sample reverse stock split ratios in the table are examples. If stockholder approval to the proposed amendment is received, the Board will have the sole discretion to elect, as it determines to be in the best interests of the Company and its stockholders, whether to effect a reverse stock split and, if so, the number of shares—7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17—of common stock that will be combined into one share of common stock. The table below does not include the 5,000,000 shares of authorized preferred stock, all of which are undesignated and none of which are outstanding under the Certificate of Incorporation. The Reverse Stock Split would have no effect on our authorized preferred stock. The figures below do not give effect to the treatment of fractional shares.

	<u>Pre-Reverse Stock Split</u>	<u>7:1</u>	<u>12:1</u>	<u>17:1</u>
Authorized	150,000,000	150,000,000	150,000,000	150,000,000
Outstanding	65,793,401	9,399,057	5,482,783	3,870,200
Reserved for future issuance pursuant to employee benefit plans	3,686,356	526,622	307,196	216,844
Reserved for future issuance pursuant to outstanding stock awards	11,634,849	1,662,121	969,570	684,402
Authorized but unissued and unreserved	68,885,394	138,412,199	143,240,449	145,228,552



## [Table of Contents](#)

No fractional shares of common stock will be issued in connection with the proposed Reverse Stock Split. Holders of common stock who would otherwise receive a fractional share of common stock pursuant to the Reverse Stock Split will receive cash in lieu of the fractional share as explained more fully below.

The common stock is currently registered under Section 12(b) of the Exchange Act, and the Company is subject to the periodic reporting and other requirements of the Exchange Act. The Reverse Stock Split would not affect the registration of the common stock under the Exchange Act. After the Reverse Stock Split, the common stock would continue to be reported on the Nasdaq Global Select Market under the symbol "ASMB."

### **Certain Risks and Potential Disadvantages Associated with the Reverse Stock Split**

If the Reverse Stock Split is implemented, some stockholders may consequently own less than one hundred shares of common stock. A purchase or sale of less than one hundred shares (an "odd lot" transaction) may result in incrementally higher trading costs through certain brokers, particularly "full service" brokers. Therefore, those stockholders who own less than one hundred shares following the Reverse Stock Split may be required to pay modestly higher transaction costs should they then determine to sell their shares in the Company.

The effect of the Reverse Stock Split upon the market prices for the common stock cannot be accurately predicted, and the history of similar stock split combinations for companies in like circumstances is varied. In particular, there is no assurance that the price per share of our common stock after the Reverse Stock Split will be 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 times, as applicable, the price per share of our common stock immediately prior to the Reverse Stock Split. Furthermore, there can be no assurance that the market price of the common stock immediately after the proposed Reverse Stock Split will be maintained for any period of time. Even if an increased share price can be maintained, the Reverse Stock Split may not achieve the other desired results which have been outlined above. In particular, we cannot assure you that the proposed Reverse Stock Split will increase our stock price and have the desired effect of maintaining compliance with applicable Nasdaq rules for listing on the Nasdaq Global Select Market. Moreover, because some investors may view a Reverse Stock Split negatively, there can be no assurance that approval of the Reverse Stock Split will not adversely impact the market price of the common stock or, alternatively, that the market price following the Reverse Stock Split will either exceed or remain in excess of the current market price.

In addition, although we believe the Reverse Stock Split may enhance the desirability of our common stock to certain potential investors, we cannot assure you that, if implemented, our common stock will be more attractive to institutional and other long term investors or that the liquidity of our common stock will increase since there would be a reduced number of shares outstanding after the Reverse Stock Split.

### **Effective Date**

If the proposed Reverse Stock Splits are approved at the Special Meeting and the Board elects to proceed with the Reverse Stock Split in one of the approved ratios, the Reverse Stock Split would become effective as of 5:00 p.m., Eastern time, on the date of the filing (the Effective Time) of the applicable certificate of amendment to the Certificate of Incorporation with the office of the Delaware Secretary of State. Except as explained below with respect to fractional shares, at the Effective Time, all shares of common stock issued and outstanding immediately prior thereto will be, automatically and without any action on the part of the stockholders, combined and converted into new shares of common stock in accordance with the Reverse Stock Split ratio determined by the Board following the Special Meeting. If the Board decides not to implement any of the Reverse Stock Splits before the 2024 Annual Meeting, further stockholder approval would be required prior to implementing any reverse stock split.

The Board reserves the right to abandon the Reverse Stock Split without further action by our stockholders at any time before the effectiveness of the certificate of amendment, even if the Reverse Stock Split has been authorized by our stockholders. By voting in favor of the Reverse Stock Split, you are expressly also authorizing the Board to determine not to proceed with, and to abandon, the Reverse Stock Split if it should so decide.

### **Cash Payment In Lieu of Fractional Shares**

No fractional shares of common stock will be issued as a result of the Reverse Stock Split. Instead, in lieu of any fractional shares to which a holder of common stock would otherwise be entitled as a result of the Reverse Stock Split, we will pay cash equal to such fraction multiplied by the closing sales price of the common stock as reported on the Nasdaq Global Select Market on the last trading day immediately preceding the Effective Time. As of December 8, 2023, there were approximately 77 stockholders of record of our common stock. Upon stockholder approval of this proposal, if the Board elects to implement the Reverse Stock Split, we do not expect that cashing out fractional stockholders would significantly reduce the number of stockholders of record.

### **No Appraisal Rights**

Under the Delaware General Corporation Law, our stockholders do not have a right to dissent and are not entitled to appraisal rights with respect to the proposed amendments to our Certificate of Incorporation to effect the Reverse Stock Split, and we will not independently provide our stockholders with any such rights.

### **Shares Held in Book-Entry and Through a Broker, Bank or Other Holder of Record**

If you hold registered shares of our common stock in a book-entry form, you do not need to take any action to receive your post-Reverse Stock Split shares of our common stock in registered book-entry form or your cash payment in lieu of fractional shares, if applicable. If you are entitled to post-Reverse Stock Split shares of our common stock, a transaction statement will automatically be sent to your address of record as soon as practicable after the Effective Time indicating the number of shares of our common stock you hold. In addition, if you are entitled to a payment of cash in lieu of fractional shares, a check will be mailed to you at your registered address as soon as practicable after the Effective Time. By signing and cashing this check, you will warrant that you owned the shares of the Company's common stock for which you received a cash payment.

At the Effective Time, we intend to treat stockholders holding shares of our common stock in "street name" (that is, through a broker, bank or other holder of record) in the same manner as registered stockholders whose shares of our common stock are registered in their names. Brokers, banks or other holders of record will be instructed to effect the Reverse Stock Split for their beneficial holders holding shares of our common stock in "street name"; however, these brokers, banks or other holders of record may apply their own specific procedures for processing the Reverse Stock Split. If you hold your shares of our common stock with a broker, bank or other holder of record, and you have any questions in this regard, we encourage you to contact your holder of record.

### **Shares Held in in Certificated Form**

If you hold any of your shares of our common stock in certificated form (the Old Certificate(s)), you will receive a transmittal letter from our transfer agent as soon as practicable after the Effective Time. The transmittal letter will be accompanied by instructions specifying how you can deliver your Old Certificate(s) so that you are in a position to freely trade your post-Reverse Stock Split shares of our common stock, which will be in a book-entry form, evidenced by a transaction statement that will be sent to your address of record as soon as practicable after your delivery of a letter of transmittal indicating the number of shares of our common stock you hold, together with any payment of cash in lieu of fractional shares to which you are entitled. Until surrendered as contemplated herein, a stockholder's Old Certificate(s) shall be deemed at and after the Effective Time to represent the number of full shares of our common stock resulting from the Reverse Stock Split.

### **U.S. Federal Income Tax Considerations**

The following discussion is a general summary of certain U.S. federal income tax considerations related to the Reverse Stock Split that may be relevant to holders of our common stock that hold such stock as a capital asset for U.S. federal income tax purposes (generally, property held for investment). This summary is based upon the

## Table of Contents

provisions of the Internal Revenue Code of 1986, as amended (the Code), Treasury Regulations promulgated thereunder, administrative rulings and judicial decisions as of the date hereof, all of which may change, possibly with retroactive effect, resulting in U.S. federal income tax consequences that may differ from those discussed below.

This discussion applies only to holders that are U.S. holders (as defined below) and does not address all aspects of federal income taxation that may be relevant to such holders in light of their particular circumstances or to holders that may be subject to special tax rules, including: (1) holders subject to an alternative tax; (2) banks, insurance companies, or other financial institutions; (3) tax-exempt organizations; (4) dealers in securities or commodities; (5) regulated investment companies or real estate investment trusts; (6) partnerships (or other flow-through entities for U.S. federal income tax purposes) and their partners or members; (7) traders in securities that elect to use a mark-to-market method of accounting for their securities holdings; (8) U.S. holders (as defined below) whose “functional currency” is not the U.S. dollar; (9) persons holding our common stock as a position in a hedging transaction, “straddle,” “conversion transaction” or other risk reduction transaction; (10) persons who acquire shares of our common stock in connection with employment or other performance of services; or (11) U.S. expatriates. If a partnership (including any entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds shares of our common stock, the tax treatment of a holder that is a partner in the partnership generally will depend upon the status of the partner and the activities of the partnership.

We have not sought, and will not seek, an opinion of counsel or a ruling from the Internal Revenue Service (IRS) regarding the U.S. federal income tax consequences of the Reverse Stock Split and there can be no assurance that the IRS will not challenge the statements and conclusions set forth below or a court would not sustain any such challenge. The following summary does not address any U.S. state or local or any foreign tax consequences, any estate, gift or other non-U.S. federal income tax consequences, or the Medicare tax on net investment income.

**EACH HOLDER OF COMMON STOCK SHOULD CONSULT SUCH HOLDER’S TAX ADVISOR WITH RESPECT TO THE PARTICULAR TAX CONSEQUENCES OF THE REVERSE STOCK SPLIT TO SUCH HOLDER.**

For purposes of the discussion below, a “U.S. holder” is a beneficial owner of shares of our common stock that for U.S. federal income tax purposes is: (1) an individual citizen or resident of the United States; (2) a corporation (including any entity taxable as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state or political subdivision thereof; (3) an estate the income of which is subject to U.S. federal income taxation regardless of its source; or (4) a trust, if (i) a court within the United States is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have the authority to control all substantial decisions of the trust, or (ii) the trust has a valid election in effect to be treated as a U.S. person.

The Reverse Stock Split is intended to be treated as a “recapitalization” for U.S. federal income tax purposes. As a result, a U.S. holder generally should not recognize gain or loss upon the Reverse Stock Split, except with respect to cash received in lieu of a fractional share of our common stock, as discussed below. A U.S. holder’s aggregate tax basis in the shares of our common stock received pursuant to the Reverse Stock Split should equal the aggregate tax basis of the shares of our common stock surrendered (excluding any portion of such basis that is allocated to any fractional share of our common stock), and such U.S. holder’s holding period in the shares of our common stock received should include the holding period in the shares of our common stock surrendered. Treasury Regulations promulgated under the Code provide detailed rules for allocating the tax basis and holding period of the shares of our common stock surrendered to the shares of our common stock received pursuant to the Reverse Stock Split. Holders of shares of our common stock acquired on different dates and at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

A U.S. holder that receives cash in lieu of a fractional share of our common stock pursuant to the Reverse Stock Split should recognize capital gain or loss in an amount equal to the difference between the amount of cash

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[Table of Contents](#)

received and the U.S. holder's tax basis in the shares of our common stock surrendered that is allocated to such fractional share. Such capital gain or loss should be long term capital gain or loss if the U.S. holder's holding period for our common stock surrendered exceeds one year at the Effective Time.

**Vote Required**

Assuming a quorum is present, to be approved, the affirmative vote of the majority of the votes cast on Proposal No. 1 must be voted "FOR" the Reverse Stock Split Proposal. Abstentions and broker non-votes will not be considered towards vote totals on Proposal No. 1.

**Recommendation of the Board of Directors**

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE REVERSE STOCK SPLIT PROPOSAL.**

## PROPOSAL NO. 2: THE NASDAQ PROPOSAL

### General

On October 17, 2023, we entered into an Option, License and Collaboration Agreement, a Common Stock Purchase Agreement (the Stock Purchase Agreement) and an Investor Rights Agreement, with Gilead Sciences, Inc. (Gilead). Under the terms of the Stock Purchase Agreement, Gilead purchased 13,073,668 shares of our common stock, which constituted 19.9% of our then-outstanding common stock.

If we complete an equity financing (or series of financings) prior to July 15, 2024 that results in at least \$30 million of proceeds to us, then subject to the approval of the Nasdaq Proposal, we may require Gilead to purchase additional shares of common stock from us that results in Gilead owning 29.9% of our then-outstanding shares of common stock (the Additional Shares) at a 35% premium equal to the lesser of (1) a 35% premium to the 30-day volume weighted average price immediately prior to the date of purchase or (2) a 35% premium to the 30-day volume weighted average price immediately prior to delivery by Gilead of notice of the anticipated closing date.

### Reasons for Seeking Stockholder Approval

Our common stock is listed on the Nasdaq Global Select Market, and we are subject to the Nasdaq Listing Rules. Rule 5635(a), among other things, requires stockholder approval if due to the potential issuance of common stock other than a public offering for cash, the common stock to be issued will be equal to or in excess of 20% of the number of shares of common stock outstanding before the issuance of the common stock.

Nasdaq Listing Rule 5635(b) requires stockholder approval prior to the issuance of securities when the issuance or potential issuance will result in a “change of control” of the company. This rule does not define when a change in control of a company may be deemed to occur; however, Nasdaq suggests in its guidance that a change of control would occur, subject to certain limited exceptions, if after a transaction a person or entity will hold 20% or more of the outstanding shares of common stock or voting power of an issuer and such ownership or voting power of an issuer would represent the largest ownership position in the issuer. We are seeking stockholder approval of this proposal in order to satisfy the requirements of Nasdaq Listing Rule 5635(b) with respect to the issuance of the Additional Shares in the event the issuance could be considered a “change of control” under that rule. Our stockholders should note that a “change of control” for purposes of Nasdaq Listing Rule 5635(b) applies only with respect to the application of such rule and does not constitute a “change of control” for purposes of Delaware law, our organizational documents, U.S. income tax laws or any other purpose. We do not believe that the issuance of the Additional Shares will result in a “change of control” of the Company for purposes of Nasdaq Listing Rule 5635(b) or for any other purpose.

Either Nasdaq Listing Rule 5635(a) or 5635(b) would preclude us from issuing the Additional Shares without receiving stockholder approval. Gilead’s increased investment would provide additional funds for clinical trials, nonclinical studies, research and development and general corporate purposes.

### Voting Exclusion Statement

Pursuant to Nasdaq Listing Rule 5635 and IM-5635-2, “Interpretative Material Regarding the Use of Shares Caps to Comply with Rule 5635,” any votes cast “FOR” this proposal attributable to any of the shares of common stock issued to Gilead under the Stock Purchase Agreement will be disregarded for purposes of determining whether this proposal is approved.

### Required Vote

Assuming a quorum is present, to be approved, the affirmative vote of the majority of the votes cast on Proposal No. 2 must be voted “FOR” the approval of the Nasdaq Proposal. Abstentions and broker non-votes will not be considered towards vote totals on Proposal No. 2 and will have no effect on the outcome of the vote. Votes cast by Gilead “FOR” Proposal No. 2 will not be counted.

### Recommendation of the Board of Directors

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE “FOR” THE NASDAQ PROPOSAL.**

**PROPOSAL NO. 3: THE ADJOURNMENT PROPOSAL**

**General**

We are asking stockholders to approve, if necessary, adjournment of the Special Meeting to solicit additional proxies in favor of either the Reverse Stock Split Proposal or the Nasdaq Proposal. Any adjournment of the Special Meeting for the purpose of soliciting additional proxies will allow stockholders who have already sent in their proxies to revoke them at any time prior to the time that the proxies are used.

**Required Vote**

Assuming a quorum is present, to be approved, the affirmative vote of the majority of the votes cast on Proposal No. 3 must be voted "FOR" the Adjournment Proposal. Abstentions and broker non-votes will not be considered towards vote totals on Proposal No. 3.

**Recommendation of the Board of Directors**

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE ADJOURNMENT PROPOSAL.**

**SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS**

The following table sets forth certain information regarding the ownership of shares of our common stock based on 65,793,401 shares outstanding as of December 8, 2023, by (1) each person known by us to beneficially own more than 5% of the outstanding shares of common stock, (2) each of our directors and (3) each of our named executive officers (NEOs) and (4) all of our directors and current executive officers as a group.

This table is based upon information supplied by our directors and NEOs and from Schedules 13G filed with the SEC by our stockholders. Unless otherwise indicated in the footnotes to this table and subject to community property laws where applicable, each of the stockholders named in this table has sole voting and investment power with respect to the shares indicated as beneficially owned by them. Share ownership in each case includes (1) shares issuable upon exercise of options and warrants that may be exercised within 60 days after December 8, 2023 and (2) RSUs held by the individual that are scheduled to vest and settle within 60 days after December 8, 2023 for purposes of computing the percentage of common stock owned by such person, but not for purposes of computing the percentage owned by any other person. Unless otherwise noted, the address for each person listed below is c/o Assembly Biosciences, Inc., Two Tower Place, 7<sup>th</sup> Floor, South San Francisco, California 94080. Applicable percentages are based on 65,793,401 shares outstanding on December 8, 2023.

There are no arrangements known to us, including any pledge by any person of our securities, the operation of which may at a subsequent date result in a change in control of Assembly Bio.

<u>Name of Beneficial Owner</u>	<u>Shares Beneficially Owned</u>	<u>Percentage Owned (%)</u>
<b>5% Stockholders:</b>		
Gilead Sciences, Inc. <sup>(1)</sup>	13,073,668	19.9%
Alexander Schornstein <sup>(2)</sup>	7,564,292	11.5%
<b>Directors, Named Executive Officers and Executive Officers:</b>		
William R. Ringo, Jr. <sup>(3)</sup>	156,465	*
Anthony E. Altig <sup>(4)</sup>	162,000	*
Tomas Cihlar, Ph.D.	—	—
Gina Consylman <sup>(5)</sup>	55,000	*
Sir Michael Houghton, Ph.D. <sup>(5)</sup>	40,000	*
Lisa R. Johnson-Pratt <sup>(5)</sup>	40,000	*
Susan Mahony, Ph.D. <sup>(5)</sup>	82,500	*
John G. McHutchison, A.O., M.D. <sup>(6)</sup>	1,100,512	1.7%
Jason A. Okazaki <sup>(7)</sup>	526,171	*
William E. Delaney IV, Ph.D. <sup>(8)</sup>	330,539	*
All directors and executive officers as a group (12 persons)	2,691,908	4.1%

\* Less than 1%.

- (1) Based on Schedule 13D filed with the SEC on October 25, 2023 by Gilead Sciences, Inc., reporting beneficial ownership as of October 16, 2023. The principal business address of Gilead is 333 Lakeside Drive, Foster City, California 94404.
- (2) Based on Schedule 13D/A filed with the SEC on November 22, 2023 by Alexander Schornstein, reporting beneficial ownership as of November 22, 2023. Mr. Schornstein's address is Kaiser-Friedrich-Allee 2, 52074 Aachen, Germany, 004915142314669.
- (3) Includes 17,465 shares of common stock and 139,000 shares of common stock that Mr. Ringo has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.
- (4) Includes 8,000 shares of common stock and 154,000 shares of common stock that Mr. Altig has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.

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[Table of Contents](#)

- (5) Includes shares of common stock that the individual has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.
- (6) Includes 135,097 shares of common stock and 965,415 shares of common stock that Dr. McHutchison has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.
- (7) Includes 77,110 shares of common stock and 449,061 shares of common stock that Mr. Okazaki has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.
- (8) Includes 70,228 shares of common stock and 260,311 shares of common stock that Dr. Delaney has the right to acquire from us within 60 days after December 8, 2023 pursuant to the exercise of stock options.



## **DEADLINE FOR STOCKHOLDER PROPOSALS FOR THE 2024 ANNUAL MEETING OF STOCKHOLDERS**

Any stockholder who meets the requirements of the proxy rules under the Exchange Act may submit proposals to the Board to be included in next year's proxy statement and on our proxy card for the 2024 Annual Meeting of Stockholders. Such proposals must comply with the requirements of Rule 14a-8 under the Exchange Act. To be considered for inclusion in next year's proxy materials, any proposals must be submitted in writing by December 14, 2023, to our Corporate Secretary at Two Tower Place, 7<sup>th</sup> Floor, South San Francisco, California 94080; provided, however, that if our 2024 Annual Meeting of Stockholders is held before April 25, 2024 or after June 24, 2024, then the deadline is a reasonable amount of time prior to the date we begin to print and send our proxy statement for the 2024 Annual Meeting of Stockholders.

Subject to compliance with applicable requirements of state law and the Exchange Act, our Amended and Restated Bylaws also provide for separate notice procedures to propose business to be considered by stockholders at a meeting. Such proposals must comply with the requirements, including without limitation, the separate notice procedures, of our Amended and Restated Bylaws. If you wish to submit such a proposal, written notice must be received by the Corporate Secretary no later than the close of business not more than 90 days before or less than 60 days before the date of the meeting, in the case of the 2024 Annual Meeting of Stockholders or any other annual meeting, or by the tenth business day following the day on which public announcement of the date of the meeting is first made, in the case of a special meeting.

Our Amended and Restated Bylaws permit a stockholder, or a group of up to 20 eligible stockholders, that has owned at least 3% of our outstanding common stock for at least three years to nominate and include in our proxy statement candidates for the Board, subject to certain requirements. Any such nomination must be received at the address above no earlier than the close of business on November 14, 2023 and no later than the close of business on December 14, 2023; provided, however, that if our 2024 Annual Meeting of Stockholders is held before April 25, 2024 or after June 24, 2024, then the deadline is the later of close of business on the date that is 180 days prior to the 2024 Annual Meeting of Stockholders and the tenth day following the date that the 2024 Annual Meeting of Stockholders is first publicly disclosed. Any such notice must meet the other requirements set forth in our Amended and Restated Bylaws, which are publicly available on the SEC's website.

Our Amended and Restated Bylaws also provide for separate notice procedures to nominate a person as a director, provided that such nominee would not be included in next year's proxy materials. Such proposals must comply with the requirements, including without limitation, the separate notice procedures, of our Amended and Restated Bylaws. If you wish to nominate a director, written notice must be received by the Corporate Secretary no later than the close of business not more than 90 days before or less than 60 days before the date of the annual meeting, in the case of the 2024 Annual Meeting of Stockholders or any other annual meeting, or not later than the tenth day following the day on which public announcement of the date of the meeting is first made in the event that less than 70 days' notice or prior public disclosure of the date of the annual meeting is given or made to stockholders.

## **DELIVERY OF DOCUMENTS TO STOCKHOLDERS SHARING AN ADDRESS**

The SEC has adopted rules that permit companies to deliver a single Proxy Availability Notice or a single copy of proxy materials to multiple stockholders sharing an address unless a company has received contrary instructions from one or more of the stockholders at that address. Upon request, we will promptly deliver a separate Proxy Availability Notice or separate copy of proxy materials to one or more stockholders at a shared address to which a single Proxy Availability Notice or a single copy of proxy materials was delivered. Stockholders may request a separate Proxy Availability Notice or separate copy of proxy materials by contacting our Corporate Secretary either by calling +1.833.509.4583 or by mailing a request to Two Tower Place, 7<sup>th</sup> Floor, South San Francisco, California 94080. Stockholders at a shared address who receive multiple Proxy Availability

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[Table of Contents](#)

Notices or multiple copies of proxy materials may request to receive a single Proxy Availability Notice or a single copy of proxy materials in the future in the same manner as described above.

**OTHER MATTERS**

The Board knows of no business to be brought before the meeting other than the proposals identified in this proxy statement. If any other matters properly come before the stockholders at the Special Meeting, it is the intention of the persons named on the proxy to vote the shares represented thereby in accordance with their best judgment.

**Certificate of Amendment to Sixth Amended and Restated Certificate of Incorporation**

**FORM OF CERTIFICATE OF AMENDMENT**

**OF**

**SIXTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF  
ASSEMBLY BIOSCIENCES, INC.**

ASSEMBLY BIOSCIENCES, INC., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the “Corporation”), does hereby certify as follows:

**FIRST:** The name of the Corporation is Assembly Biosciences, Inc.

**SECOND:** The Corporation’s original Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on October 7, 2005, under the name South Island Biosciences, Inc., an Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on October 24, 2005, a second Amended and Restated Certificate of Incorporation, which included a provision to change the Corporation’s name to Ventrus Biosciences, Inc., was filed with the Secretary of State of the State of Delaware on April 5, 2007 (the “Second Amended and Restated Certificate of Incorporation”), a third Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on November 10, 2010 (the “Third Amended and Restated Certificate of Incorporation”) and a Certificate of Amendment of the Third Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on July 10, 2014, which included a provision to change the Corporation’s name to Assembly Biosciences, Inc., a Fourth Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on May 31, 2018, a Fifth Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on June 12, 2020, and a Sixth Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on May 25, 2022.

**THIRD:** That the Board of Directors of the Corporation adopted resolutions setting forth a proposed amendment of the Corporation’s Sixth Amended and Restated Certificate of Incorporation, declaring such amendment to be advisable and in the best interests of the Corporation and its stockholders and authorizing the appropriate officers of the Corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment is as follows:

**RESOLVED,** that Article IV of the Sixth Amended and Restated Certificate of Incorporation be amended to insert the following text at the end of the second paragraph:

“Effective as of 5:00 p.m., Eastern time, on the date this Certificate of Amendment to the Sixth Amended and Restated Certificate of Incorporation is filed with the Secretary of State of the State of Delaware, each [●]\* shares of the Corporation’s Common Stock, par value \$0.001 per share, issued and outstanding shall, automatically and without any action on the part of the respective holders thereof, be combined and converted into one (1) share of Common Stock, par value \$0.001 per share, of the Corporation. No fractional shares shall be issued and, in lieu thereof, any holder of less than one (1) share of Common Stock shall be entitled to receive cash for such holder’s fractional share based upon the closing sales price of the Corporation’s Common Stock as reported on the Nasdaq Global Select Market, as of the date this Certificate of Amendment is filed with the Secretary of State of the State of Delaware.”

[Table of Contents](#)

**FOURTH:** This Certificate of Amendment of the Amended and Restated Certificate of Incorporation has been duly adopted by the stockholders of the Corporation in accordance with the provisions of Section 242 of the Delaware General Corporation Law.

**IN WITNESS WHEREOF**, the Corporation has caused this Certificate of Amendment of the Sixth Amended and Restated Certificate of Incorporation to be signed by its Chief Executive Officer and President this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

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Jason A. Okazaki  
Chief Executive Officer and President

\* These amendments approve the combination of any whole number of shares of Common Stock between and including seven (7) and seventeen (17) into one (1) share of Common Stock. By these amendments, the stockholders would approve each of the 11 amendments proposed by the Board of Directors. The Certificate of Amendment filed with the Secretary of State of the State of Delaware will include only that amendment determined by the Board of Directors to be in the best interests of the Company and its stockholders. The other ten proposed amendments will be abandoned pursuant to Section 242(c) of the Delaware General Corporation Law. The Board of Directors may also elect not to do any reverse split, in which case all 11 proposed amendments will be abandoned. In accordance with the resolutions to be adopted by the stockholders, the Board of Directors will not implement any amendment providing for a different split ratio.





ASSEMBLY BIOSCIENCES, INC.  
TWO TOWER PLACE, 7TH FLOOR  
SOUTH SAN FRANCISCO, CA 94080



**VOTE BY INTERNET**

*Before The Meeting* - Go to [www.proxyvote.com](http://www.proxyvote.com) or scan the QR Barcode above

Use the Internet to transmit your voting instructions and for electronic delivery of information. Vote by 11:59 PM. EST on January 30, 2024 for common stock held directly and by 11:59 PM. EST on January 28, 2024 for common stock held in a Company-sponsored Plan. Have your proxy card in hand when you access the website and follow the instructions to obtain your records and to create an electronic voting instruction form.

*During The Meeting* - Go to [www.virtualshareholdermeeting.com/ASMB20245M](http://www.virtualshareholdermeeting.com/ASMB20245M)

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 PM. EST on January 30, 2024 for common stock held directly and by 11:59 PM. EST on January 28, 2024 for common stock held in a Company-sponsored Plan. 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 BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

V27113-577938

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

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

ASSEMBLY BIOSCIENCES, INC.

The Board of Directors recommends you vote FOR the following proposals.

	For	Against	Abstain
1. Approval of a series of alternative amendments to our Sixth Amended and Restated Certificate of Incorporation to effect, at the discretion of our Board of Directors, a reverse stock split of our common stock at a ratio to be determined by the Board within a range of 1-for-7 to 1-for-17 (or any number in between) without reducing the authorized number of shares of the common stock.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Approval, subject to certain conditions, the issuance of shares of common stock to Gilead Sciences, Inc. pursuant to Nasdaq Listing Rules 5635(a) and 5635(b).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Approval of an adjournment of the Special Meeting to a later date or dates, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the foregoing proposals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**NOTE:** Your proxy holder will also vote in their discretion upon such other matters that may properly come before the meeting and any adjournment or postponement thereof.

Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

\_\_\_\_\_  
Signature [PLEASE SIGN WITHIN BOX]      Date

\_\_\_\_\_  
Signature (Joint Owners)      Date

**Important Notice Regarding the Availability of Proxy Materials for the Special Meeting of Stockholders:**

The Notice and Proxy Statement are available at [www.proxyvote.com](http://www.proxyvote.com).

V27114-577938

**ASSEMBLY BIOSCIENCES, INC.  
Special Meeting of Stockholders  
January 31, 2024 8:00 A.M. PST  
This proxy is solicited by the Board of Directors**

The stockholder(s) hereby appoint(s) Jason A. Okazaki and John O. Gunderson, or either of them, as proxies, each with the power to appoint his substitute, and hereby authorize(s) either of them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of common stock of ASSEMBLY BIOSCIENCES, INC. that the stockholder(s) is/are entitled to vote at the Special Meeting of Stockholders to be held at 8:00 A.M. PST on January 31, 2024 at [www.virtualshareholdermeeting.com/ASMB2024SM](http://www.virtualshareholdermeeting.com/ASMB2024SM).

**This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.**

**Continued and to be signed on reverse side.**