

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

**FORM S-3  
REGISTRATION STATEMENT**  
*UNDER  
THE SECURITIES ACT OF 1933*

**Assembly Biosciences, Inc.**  
(Exact name of registrant as specified in its charter)

Delaware  
(State or other jurisdiction of  
incorporation or organization)

20-8729264  
(I.R.S. Employer  
Identification Number)

Two Tower Place, 7<sup>th</sup> Floor  
South San Francisco, California 94080  
(833) 509-4583

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Jason A. Okazaki  
Chief Executive Officer and President  
Two Tower Place, 7<sup>th</sup> Floor  
South San Francisco, California 94080  
(833) 509-4583

(Name, address, including zip code, and telephone number, including area code, of agent for service)

*Copy to:*

P. Michelle Gasaway, Esq.  
Skadden, Arps, Slate, Meagher & Flom LLP  
2000 Avenue of the Stars  
Los Angeles, California 90067  
(213) 687-5000

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not a solicitation of an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Prospectus



**6,980,811 Shares**

**Common Stock Offered by the Selling Stockholder**

This prospectus relates to the offering and resale from time to time of up to 6,980,811 shares of common stock of Assembly Biosciences, Inc. by the selling stockholder identified in this prospectus, including its respective pledgees, assignees, donees, transferees or successors-in-interest. We are not selling any shares of common stock under this prospectus and will not receive any proceeds from the sale of the shares offered by this prospectus; however, we have agreed to pay the registration expenses relating to such shares of common stock.

We have agreed, pursuant to an investor rights agreement, as amended (the "Investor Rights Agreement"), that we entered into with the selling stockholder, to bear all of the registration expenses incurred in connection with the registration of these shares of common stock. The selling stockholder will pay or assume discounts, commissions, fees of underwriters, selling brokers or dealer managers and similar expenses, if any, incurred for the sale of these shares of our common stock.

The selling stockholder identified in this prospectus, or its respective pledgees, assignees, donees, transferees or successors-in-interest, may offer the shares from time to time on terms to be determined at the time of sale through ordinary brokerage transactions or through any other means described in this prospectus under the caption "Plan of Distribution." The shares may be sold at fixed prices, at prevailing market prices, at prices related to prevailing market prices or at negotiated prices. For more information on the selling stockholder, see the section captioned "Selling Stockholder" on page 9.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

Our common stock is traded on the Nasdaq Global Select Market under the symbol "ASMB." On October 13, 2025, the last reported sale price of our common stock was \$27.66 per share.

**Investing in our securities involves a number of risks. See "[Risk Factors](#)" on page 7 before you make your investment decision.**

The securities may be sold directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section captioned "Plan of Distribution" in this prospectus. If any agents, underwriters or dealers are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents, underwriters or dealers and any applicable fees, commissions, discounts and over-allotment or other options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds from such sale will also be set forth in a prospectus supplement. Unless the applicable prospectus supplement provides otherwise, we will not receive any proceeds from the sale of securities by the selling stockholder.

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus or any accompanying prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.**

The date of this prospectus is \_\_\_\_\_, 2025.

TABLE OF CONTENTS

<a href="#"><u>ABOUT THIS PROSPECTUS</u></a>	1
<a href="#"><u>WHERE YOU CAN FIND MORE INFORMATION</u></a>	2
<a href="#"><u>CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS</u></a>	3
<a href="#"><u>RISK FACTORS</u></a>	7
<a href="#"><u>USE OF PROCEEDS</u></a>	8
<a href="#"><u>SELLING STOCKHOLDER</u></a>	9
<a href="#"><u>DESCRIPTION OF CAPITAL STOCK</u></a>	12
<a href="#"><u>PLAN OF DISTRIBUTION</u></a>	16
<a href="#"><u>LEGAL MATTERS</u></a>	18
<a href="#"><u>EXPERTS</u></a>	19

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission (the “SEC”) using a “shelf” registration process. Under this shelf registration process, the selling stockholder may offer and sell up to 6,980,811 shares of our common stock in one or more offerings.

Each time the selling stockholder offers securities under this prospectus, we may provide a prospectus supplement that will contain more specific information about the terms of that offering; provided, however, that the selling stockholder named in this prospectus may sell the shares beneficially owned by that selling shareholder specified under the caption “Selling Stockholder” in this prospectus without providing a prospectus supplement. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. Any prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change any of the information contained in this prospectus or in the documents that we have incorporated by reference into this prospectus. We urge you to read carefully this prospectus, any applicable prospectus supplement and any free writing prospectuses we have authorized for use in connection with a specific offering, together with the information incorporated herein by reference as described under the heading “Incorporation of Certain Information by Reference,” before buying any of the securities being offered.

We and the selling stockholder have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. We and the selling stockholder do not provide any assurance as to the reliability of any other information that others may give you. This prospectus, any applicable supplement to this prospectus or any related free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than common stock to which they relate, nor do this prospectus, any applicable supplement to this prospectus or any related free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction.

You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered, or securities are sold, on a later date.

When used in this prospectus, the terms “Assembly Bio,” “Assembly,” the “Company,” “we,” “our” and “us” refer to Assembly Biosciences, Inc. and its consolidated subsidiaries, unless otherwise specified or the context otherwise requires.

## WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Our SEC filings are available to the public at the SEC’s website at [www.sec.gov](http://www.sec.gov).

The SEC allows us to “incorporate by reference” information into this prospectus and any accompanying prospectus supplement, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus and any accompanying prospectus supplement, except for any information superseded by information contained directly in this prospectus, any accompanying prospectus supplement, any subsequently filed document deemed incorporated by reference or any free writing prospectus prepared by or on behalf of us. This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that we have previously filed with the SEC (other than information deemed furnished and not filed in accordance with SEC rules, including Items 2.02 and 7.01 of Form 8-K).

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the SEC on [March 20, 2025](#);
- the information specifically incorporated by reference into our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2024 from our definitive proxy statement on Schedule 14A, filed with the SEC on [April 23, 2025](#);
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2025 and June 30, 2025, filed with the SEC on [May 8, 2025](#) and [August 6, 2025](#);
- our Current Report on Form 8-K, filed with the SEC on [January 3, 2025](#), [February 20, 2025](#), [June 9, 2025](#), [June 25, 2025](#), [August 6, 2025 \(Item 8.01 only\)](#), [August 8, 2025](#), [August 11, 2025](#); and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) filed with the SEC on December 10, 2010, including any amendment or report filed by us for the purpose of updating such description, including Exhibit 4.2 to our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on [March 28, 2024](#).

All documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus and before the termination of the offering also shall be deemed to be incorporated herein by reference. We are not, however, incorporating by reference any documents or portions thereof that are not deemed “filed” with the SEC, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K.

If requested, we will provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that has been incorporated by reference in the prospectus but not delivered with the prospectus. Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference into such documents. To obtain a copy of these filings at no cost, you may write or telephone us at the following address:

Assembly Biosciences, Inc.  
Two Tower Place, 7<sup>th</sup> Floor  
South San Francisco, California 94080  
Attn: Corporate Secretary  
(833) 509-4584

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any applicable prospectus supplement, any related free writing prospectus and the documents that we incorporate by reference herein and therein contain forward-looking statements within the meaning of 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). All statements other than statements of historical facts contained in this prospectus, any applicable prospectus supplement, any related free writing prospectus and any documents incorporated by reference, including statements regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. These statements are often, but are not always, made through the use of words or phrases such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would” and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions and uncertainties that could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, any applicable prospectus supplement and any related free writing prospectus, as well as the information and documents incorporated by reference herein and therein, and in particular those factors referenced in the section “Risk Factors.”

Forward-looking statements include, but are not limited to, statements about:

- our ability to maintain financial resources necessary to continue our research activities, clinical studies and other business operations;
- our ability to realize the potential benefits of our collaboration with Gilead Sciences, Inc. (Gilead), including all financial aspects of the collaboration and equity investments;
- our ability to initiate and complete clinical studies involving our therapeutic product candidates, including studies contemplated by our collaboration with Gilead, in the currently anticipated timeframes or at all;
- safety and efficacy data from clinical or nonclinical studies may not warrant further development of our product candidates;
- clinical and nonclinical data presented at conferences may not differentiate our product candidates from other companies’ candidates
- potential effects of changes in government regulation, including as a result of the change in U.S. administration in 2025; and
- results of nonclinical studies may not be representative of disease behavior in a clinical setting and may not be predictive of the outcomes of clinical studies.

The forward-looking statements are based on our management’s beliefs and assumptions and on information currently available to our management. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results or events to be materially different from the plans, intentions and expectations expressed or implied by these forward-looking statements, including, without limitation the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A: Risk Factors” and elsewhere in our Annual Report on Form 10-K for the year ended December 31, 2024 and the section of this prospectus and any applicable prospectus supplement titled “Risk Factors.”

The forward-looking statements in this prospectus, any applicable prospectus supplement and any related free writing prospectus, as well as the documents incorporated by reference herein and therein, represent our views as of their respective dates. We anticipate that subsequent events and developments will cause our views to change.

---

However, while we may elect to update these forward-looking statements at some point in the future, we assume no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the dates on which they were made.

## PROSPECTUS SUMMARY

*This summary highlights selected information appearing elsewhere in this prospectus or incorporated by reference in this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, any applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading "Risk Factors" contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.*

### Assembly Biosciences, Inc.

#### Overview

We are a biotechnology company developing innovative therapeutics targeting serious viral diseases with the potential to improve the lives of patients worldwide. Our pipeline includes multiple clinical-stage investigational therapies, including: (1) two helicase-primase inhibitors (HPI) targeting recurrent genital herpes; (2) an orally bioavailable hepatitis delta virus (HDV) entry inhibitor; and (3) a highly potent next-generation capsid assembly modulator (CAM) designed to disrupt the replication cycle of hepatitis B virus (HBV) at several key points. Our pipeline also includes a novel, oral broad-spectrum non-nucleoside polymerase inhibitor (NNPI) targeting transplant-related herpesviruses, which is currently undergoing studies to enable a regulatory filing, and we have additional research programs against multiple antiviral targets.

Since the beginning of 2024, we have initiated: (1) both the Phase 1a and Phase 1b portions of a Phase 1a/b study of ABI-5366 (5366), a long-acting HPI for recurrent genital herpes; (2) both the Phase 1a and Phase 1b portions of a Phase 1a/b study of ABI-1179 (1179), also a long-acting HPI for recurrent genital herpes; (3) a Phase 1a study of ABI-6250 (6250), an orally bioavailable HDV entry inhibitor; and (4) a Phase 1b study of ABI-4334 (4334), a highly potent, next-generation CAM for chronic HBV infection.

We announced interim results from the Phase 1a portion of the 5366 study in September 2024 and interim results from the Phase 1b portion of the 5366 study in August 2025, interim results from the Phase 1a portion of the 1179 study in February 2025 and topline results from the Phase 1b study of 4334 in June 2025.

In addition, in December 2024, we identified a development candidate, ABI-7423 (7423), in our broad-spectrum NNPI program targeting transplant-associated herpesviruses, which is currently in regulatory filing-enabling preclinical studies.

#### Corporate Information

Assembly Biosciences, Inc., formerly known as Ventrus BioSciences, Inc., was incorporated under the laws of the State of Delaware on October 7, 2005, originally under the name South Island Biosciences, Inc. On July 11, 2014, we acquired Assembly Pharmaceuticals, Inc., a private company (the Merger). In connection with the Merger, we changed our name from Ventrus Biosciences, Inc. to Assembly Biosciences, Inc.

Our principal executive office is located at Two Tower Place, 7<sup>th</sup> Floor, South San Francisco, California 94080 and our telephone number is (833) 509-4583. We maintain a website at [www.assemblybio.com](http://www.assemblybio.com). The information on our website is not incorporated by reference in this prospectus or any accompanying prospectus supplement, and you should not consider it a part of this prospectus or any accompanying prospectus supplement.

**Risk Factors**

Investing in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, see “Risk Factors” on p. 7.

**The Offering**

The selling stockholder named in this prospectus may offer up to 6,980,811 shares of common stock, which includes (1) 1,089,472 shares acquired by the selling stockholder pursuant to that certain Common Stock Purchase Agreement, dated October 15, 2023, between us and the selling stockholder, which was amended on June 17, 2024 (as amended, the “Common Stock Purchase Agreement”), (2) 179,500 shares acquired by the selling stockholder pursuant to that certain Securities Purchase Agreement, dated June 17, 2024 (the “2024 Securities Purchase Agreement”), (3) 179,500 shares underlying the warrant to purchase common stock pursuant to the 2024 Securities Purchase Agreement (the “2024 Warrant”), (4) 940,499 shares acquired by the selling stockholder on December 19, 2024 pursuant to the terms of the Common Stock Purchase Agreement, (5) 2,295,920 shares acquired by the selling stockholder pursuant to that certain Securities Purchase Agreement, dated August 8, 2025 (the “2025 Securities Purchase Agreement” and, collectively with the Common Stock Purchase Agreement and the 2024 Securities Purchase Agreement, the “Purchase Agreements”), (6) 1,147,960 shares underlying the Class A Warrant to purchase common stock pursuant to the 2025 Securities Purchase Agreement (the “Class A Warrant”) and (7) 1,147,960 shares underlying the Class B Warrant to purchase common stock pursuant to the 2025 Securities Purchase Agreement (the “Class B Warrant” and, collectively with the 2024 Warrant and the Class A Warrant, the “Warrants”). The selling stockholder will determine when and how they sell the shares of common stock offered in this prospectus, as described in “Plan of Distribution.” See “Selling Stockholder” for additional information regarding the selling stockholder.

**Use of Proceeds**

We will not receive any of the proceeds from the sale of shares of common stock being offered in the prospectus. See “Use of Proceeds.”

**Nasdaq Global Select Market Listing**

Our common stock is listed on the Nasdaq Global Select Market under the symbol “ASMB.”

## RISK FACTORS

Investing in our securities involves risk. See the risk factors described in our most recent Annual Report on Form 10-K (together with any material changes thereto contained in subsequent filings with the SEC that are incorporated by reference in this prospectus and any accompanying prospectus supplement) and those contained in our other filings with the SEC that are incorporated by reference in this prospectus and any accompanying prospectus supplement. Before making an investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus and any accompanying prospectus supplement. These risks could materially affect our business, financial condition or results of operations and cause the value of our securities to decline. You could lose all or part of your investment.

## USE OF PROCEEDS

We are filing the registration statement of which this prospectus forms a part to permit the holder of the shares of our common stock described in the section captioned "Selling Stockholder" to resell such shares. We are not selling any securities under this prospectus, and we will not receive any proceeds from the sale or other disposition of shares of our common stock beneficially owned by the selling stockholder.

The selling stockholder will pay any underwriting discounts and commissions and expenses incurred by the selling stockholder for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholder in disposing of these Shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the Shares covered by this prospectus, including, without limitation, all registration and filing fees, listing fees and fees and expenses of our counsel and our accountants.

## SELLING STOCKHOLDER

Pursuant to the Investor Rights Agreement, we agreed to file this prospectus to cover the sale or other disposition by the selling stockholder of up to the total number of shares of our common stock, including shares of common stock underlying the Warrants, that may be issued to the selling stockholder pursuant to the Purchase Agreements. The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholder as of August 8, 2025. The information in the table below with respect to the selling stockholder has been obtained from the selling stockholder. When we refer to the “selling stockholder” in this prospectus, or, if required, a post-effective amendment to the registration statement of which this prospectus is a part, we mean the selling stockholder listed in the table below as offering shares, as well as its pledgees, assignees, donees, transferees or successors-in-interest. Throughout this prospectus, when we refer to the shares of our common stock being registered on behalf of the selling stockholder, we are referring to the shares of our common stock, including shares of common stock underlying the Warrants, that may be issued to the selling stockholder pursuant to the Purchase Agreements. The selling stockholder may sell all, some or none of the shares of common stock subject to this prospectus. See “Plan of Distribution” below as it may be supplemented and amended from time to time.

The number of shares of common stock beneficially owned prior to the offering for the selling stockholder gives effect to the Beneficial Ownership Limitation. The number of shares of common stock being offered does not give effect to the Beneficial Ownership Limitation and includes all shares of our common stock beneficially owned by the selling stockholder as of August 8, 2025, as well as all shares of our common stock underlying the Warrants purchased by the selling stockholder pursuant to the Purchase Agreements. The percentages of shares owned before and after the offering are based on 15,560,009 shares of common stock outstanding as of August 8, 2025, which includes the shares of common stock offered by this prospectus.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to our common stock, except as noted above. Generally, a person “beneficially owns” shares of our common stock if the person has or shares with others the right to vote those shares or to dispose of them, or if the person has the right to acquire voting or disposition rights within 60 days. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for the selling stockholder named below.

<u>Name of Selling Stockholder(1)</u>	<u>Shares of Common Stock Beneficially Owned Prior to Offering</u>		<u>Number of Shares of Common Stock Being Offered(3)</u>	<u>Shares of Common Stock Beneficially Owned After Offering(4)</u>	
	<u>Number</u>	<u>Percentage</u>		<u>Number</u>	<u>Percentage</u>
Gilead Sciences, Inc.	4,505,391(2)	29.0%(2)	6,980,811	—	—

- (1) The shares reported under “Shares of Common Stock Beneficially Owned Prior to Offering” consist of (a) 1,089,472 shares of common stock purchased by Gilead pursuant to the Common Stock Purchase Agreement, (b) 179,500 shares of common stock purchased by Gilead pursuant to the 2024 Securities Purchase Agreement, (c) 940,499 shares of common stock purchased by Gilead in December 2024 pursuant to the Common Stock Purchase Agreement and (d) 2,295,920 shares purchased by Gilead pursuant to the 2025 Securities Purchase Agreement.
- (2) The 179,500 shares of common stock underlying the 2024 Warrant, the 1,147,960 shares of common stock underlying the Class A Warrant and the 1,147,960 shares of common stock underlying the Class B Warrant are not exercisable due to the Beneficial Ownership Limitation (as defined below) terms of the Warrants, so they are not deemed to be beneficially owned. In addition, the Class B Warrants are not exercisable until November 15, 2026, which is more than 60 days after the filing of this registration statement, so they are not deemed to be beneficially owned.
- (3) The number of shares of our common stock in the column “Number of Shares of Common Stock Being Offered” represents all of the shares of our common stock that the selling stockholder may offer and sell

from time to time under this prospectus, including the 4,505,391 shares of common stock beneficially owned prior to this offering and the 2,475,420 shares of common stock underlying the Warrants (which are not deemed to be beneficially owned under SEC rules).

- (4) We do not know when or in what amounts the selling stockholder may offer shares for sale. The selling stockholder might not sell any or, following the expiration of the Lockup (as defined below), might sell all of the shares offered by this prospectus. Because the selling stockholder may offer all or some of the shares pursuant to this offering following the expiration of the Lockup, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be beneficially owned by the selling stockholder after completion of the offering.

#### **Relationships with the Selling Stockholder**

We and Gilead, the selling stockholder, are parties to the following agreements:

- License and Collaboration Agreement (the Collaboration Agreement) with Gilead entered into in October 2023 pursuant to which we received an \$85 million upfront cash payment pursuant to which Gilead will (1) exclusively license to us its helicase-primase inhibitor and non-nucleoside polymerase inhibitor programs, while retaining opt-in rights to these programs and (2) have an option to take an exclusive license, on a program-by-program basis, to all of our other current and future pipeline programs. During the 12-year collaboration term, subject to payment by Gilead of extension fees of \$75 million in each of the third, fifth and seventh years of the collaboration, and for a specified period thereafter, Gilead may exercise its opt-in rights, on a program-by-program basis, on one of two timepoints, and upon Gilead's exercise, we are eligible to receive option exercise payments ranging from \$45 million to \$125 million per program depending on the type of program and when the option is exercised. In December 2024, we and Gilead entered into the First Amendment to the Gilead Collaboration Agreement (the "First Amendment"), which restructured certain option time points and fees payable to us under the terms of the Gilead Collaboration Agreement due to an agreed upon development plan for ABI-6250 ("6250"). To facilitate this development plan, (1) we received a payment of \$10 million from Gilead and (2) the opt-in fee payable by Gilead in connection with 6250 was restructured, though it remains in the range of opt-in fees detailed above. The \$10 million payment received in connection with the First Amendment is creditable towards future collaboration-related payments payable by Gilead. If Gilead exercises opt-in rights to any current or future program under the collaboration, we are eligible to receive up to \$330 million in potential regulatory and commercial milestones on that program, in addition to royalties ranging from the high single-digits to high teens, depending on the clinical stage of the applicable program at the time of the opt-in. Following Gilead's exercise of its option for each of our programs, we may opt in to cover 40% of the research and development costs for the applicable program in the United States and share 40% of the profits and operating loss in the United States for products within the program in lieu of receiving milestones and royalties for that program in the United States, unless we later opt out of the cost/profit share for the program. Prior to Gilead's potential exercise of its opt-in, we are primarily responsible for all discovery, research and development on both our programs and the two Gilead-contributed programs. Following Gilead's opt-in, Gilead will control the further discovery, research, development and commercialization on any optioned program. As of December 31, 2024, we have received \$95 million from Gilead under the Collaboration Agreement, and as of December 31, 2024, Gilead has not obtained an exclusive license to any of our investigational products.
- Common Stock Purchase Agreement and Investor Rights Agreement with Gilead entered into in October 2023 (together, the "Equity Agreements"), which were both amended in June 2024 in connection with a financing transaction (the "2024 Financing Transaction"). Pursuant to the Equity Agreements, Gilead made an upfront equity investment of \$15 million by purchasing from us 13,073,668 shares at a purchase price of \$1.16 per share (which was reduced to 1,089,472 shares when we effected a 1-for-12 reverse stock split in February 2024). As a part of the 2024 Financing

Transaction, we and Gilead entered into the 2024 Securities Purchase Agreement for the issuance and sale, in a private placement, of 179,500 shares of our common stock and the 2024 Warrant to purchase up to 179,500 shares of our common stock at a combined purchase price of \$15.46. The common stock and the 2024 Warrant were sold to Gilead pursuant to the terms of the Investor Rights Agreement. The 2024 Warrant sold to Gilead has an exercise price equal to \$17.00 per share, became immediately exercisable on the date of issuance and will expire on June 18, 2029. Subject to certain exceptions, neither Gilead nor its affiliates may exercise any portion of the 2024 Warrant to the extent that Gilead would own more than 19.99% of the number of our shares of common stock outstanding immediately after giving effect to such exercise (the “Beneficial Ownership Limitation”). The terms of the Equity Agreements provided Gilead the right to elect to purchase additional shares of common stock from us at a premium in an amount that results in Gilead owning 29.9% of our then-outstanding voting common stock. This right was exercised in December 2024, at a purchase price of \$21.37 per share, which represents a 35% premium to the 30-trading day volume weighted average price immediately prior to the date of purchase. The Equity Agreements also include a three-year standstill provision and a two-year lockup provision (the “Lockup”), each with customary exceptions, and provides Gilead with certain other stock purchase rights and registration rights, as well as the right to designate two directors (or, alternatively, board observers at Gilead’s election) to our Board. Gilead’s current director designees are Tomas Cihlar, Ph.D. and Robert D. Cook II. As of June 30, 2025, Gilead beneficially owned approximately 28.1% of our outstanding common stock.

- Securities Purchase Agreement with Gilead entered into in August 2025 for the issuance and sale, in a private placement, of 2,295,920 shares of our common stock and the Class A Warrant to purchase up to 1,147,960 shares of our common stock and the Class B Warrant to purchase up to 1,147,960 shares of our common stock at a combined purchase price of \$19.60 per share and accompanying one-half of one Class A Warrant and one-half of one Class B Warrant. The common stock, the Class A Warrant and the Class B Warrant were sold to Gilead pursuant to the terms of the Investor Rights Agreement. The Class A Warrant has an exercise price of \$21.60 per share, became immediately exercisable on the date of issuance and will expire on or prior to the earlier of (a) August 11, 2030 and (b) 30 days after the public announcement that we have completed enrollment (of at least 200 patients total) for our Phase 2 clinical study evaluating ABI-5366. The Class B Warrant has an exercise price of \$21.60 per share and is exercisable between November 15, 2026 and December 31, 2026. Notwithstanding the foregoing, if, prior to November 15, 2026, we publicly announce that we have received at least \$75.0 million in the aggregate of non-dilutive capital in connection with a collaboration agreement, then the Class B Warrant automatically terminates in full. Both the Class A Warrant and the Class B Warrant are subject to the Beneficial Ownership Limitation (as defined above).

## DESCRIPTION OF CAPITAL STOCK

### General

The following summary description of our capital stock is based on the provisions of the Delaware General Corporation Law (the "DGCL"), our certificate of incorporation, as amended, and our bylaws, as amended. This description does not purport to be complete and is qualified in its entirety by reference to the full text of the DGCL, as it may be amended from time to time, and to the terms of our certificate of incorporation and bylaws, as each may be amended from time to time, which are incorporated by reference as exhibits to the registration statement of which this prospectus is a part. See "Where You Can Find More Information." As used in this "Description of Capital Stock," the terms "Assembly Bio," "Assembly," the "Company," "we," "our" and "us" refer to Assembly Biosciences, Inc., a Delaware corporation, and do not, unless otherwise specified, include our subsidiaries.

### Authorized Capital Stock

Our authorized capital stock consists of 150,000,000 shares of common stock, par value \$0.001 per share, and 5,000,000 shares of preferred stock, par value \$0.001 per share. The number of authorized shares of any class may be increased or decreased by an amendment to our certificate of incorporation proposed by our board of directors and approved by a majority of outstanding shares voted on the issue at a meeting of our stockholders at which a quorum exists.

### Common Stock

The holders of our common stock are entitled to one vote per share on all matters to be voted on by the stockholders, and there are no cumulative voting rights.

The holders of common stock are entitled to receive ratable dividends, if any, payable when and as declared by our board of directors or any authorized committee thereof out of assets or funds legally available therefor, subject to any preferential rights that may be applicable to any outstanding preferred stock. In the event of a liquidation, dissolution or winding up of our company, after payment in full of all outstanding debts and other liabilities, the holders of common stock are entitled to share ratably in all remaining assets, subject to prior distribution rights of preferred stock, if any, then outstanding. No shares of common stock have preemptive rights or other subscription rights to purchase additional shares of common stock. There are no redemption or sinking fund provisions applicable to the common stock.

### Preferred Stock

Our board of directors is authorized to issue up to 5,000,000 shares of preferred stock in one or more series without stockholder approval. Our board of directors may determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. The purpose of authorizing our board of directors to issue preferred stock in one or more series and determine the number of shares in the series and its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. The rights of holders of our common stock described above will be subject to, and may be adversely affected by, the rights of any preferred stock that we may designate and issue in the future. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

We will incorporate by reference as an exhibit to the registration statement of which this prospectus forms a part the form of any certificate of designation that describes the terms of any series of preferred stock we may offer. This description and the applicable prospectus supplement and/or any related free writing prospectus may include the following terms, among others, where applicable:

- the title and stated value;
- the number of shares authorized;
- the liquidation preference per share;
- the purchase price;
- the dividend rate, period and payment date, and method of calculation for dividends;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price, or how it will be calculated, and the conversion period;
- whether the preferred stock will be exchangeable into debt securities, and, if applicable, the exchange price, or how it will be calculated, and the exchange period;
- voting rights, if any, of the preferred stock;
- preemptive rights, if any;
- restrictions on transfer, sale or other assignment, if any;
- whether interests in the preferred stock will be represented by depositary shares;
- a discussion of any material U.S. federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;
- any limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the preferred stock.

When we issue shares of preferred stock under this prospectus, the shares will fully be paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

#### **Anti-Takeover Effects of Provisions of the Certificate of Incorporation, Bylaws and Other Agreements**

Certain provisions of the DGCL, our certificate of incorporation and our bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also

designed in part to encourage anyone seeking to acquire control of us or considering unsolicited tender offers or other unilateral takeover proposals to first negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

#### *Delaware Antitakeover Law*

We are subject to the provisions of Section 203 of the DGCL (Section 203). In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An “interested stockholder” is a person who, together with such person’s affiliates and associates, owns, or did own within three years prior to such determination, 15% or more of the corporation’s voting stock. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding, for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or
- at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

#### *Charter Documents*

Our certificate of incorporation and our bylaws include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control or management of our company. First, our certificate of incorporation and our bylaws provide that all stockholder action must be effected at a duly called meeting of stockholders and not by a consent in writing. Further, our bylaws limit who may call special meetings of the stockholders. Our certificate of incorporation does not include a provision for cumulative voting for directors. Under cumulative voting, a minority stockholder holding a sufficient percentage of a class of shares may be able to ensure the election of one or more directors. Our bylaws provide that the number of directors on our board, which may range from three to ten directors, shall be exclusively fixed by our board, which has set the number of directors at seven. Newly created directorships resulting from any increase in our authorized number of directors and any vacancies in our board resulting from death, resignation, retirement, disqualification or other cause (including removal from office by a vote of the stockholders) will be filled by a majority of our board then in office. Finally, our bylaws establish procedures and other terms and conditions, including advance notice procedures, regarding special meeting requests by stockholders holding in the aggregate at least 25% of our outstanding common stock, nomination of candidates for election as directors and stockholder proposals. These and other provisions of our certificate of incorporation, our bylaws and Delaware law could discourage potential acquisition proposals and could delay or prevent a change in control or management of our company.

Our bylaws also provide that the Court of Chancery of the State of Delaware (or if such court does not have jurisdiction, the Superior Court of Delaware, or if such other court does not have jurisdiction, the United States District Court for the District of Delaware) will be the exclusive forum for: any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the DGCL, our certificate of incorporation or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. This provision will not apply to litigation brought to enforce any liability or duty created by: the Securities Act of 1933, as amended; the Securities Exchange Act of 1934, as amended; or the rules and regulations thereunder. The enforceability of similar choice of forum provisions in other companies' organizational documents has been challenged in legal proceedings and, while the Delaware Supreme Court has upheld the validity of certain choice of forum provisions, it is possible that, in connection with one or more actions or proceedings described above, a court could find the choice of forum provisions contained in our bylaws to be inapplicable or unenforceable.

**Listing**

Our common stock is listed on The Nasdaq Global Select Market under the symbol "ASMB."

**Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC. The transfer agent and registrar's address is 28 Liberty Street, Floor 53, New York, NY 10005.

## PLAN OF DISTRIBUTION

The selling stockholder, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholder may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchaser
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is effective with the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholder to sell a specified number of such shares at a stipulated price per share;
- through a combination of any of these methods;
- any other method permitted by applicable law.

The selling stockholder may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by the selling stockholder and, if the selling stockholder defaults in the performance of its secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act, amending the selling stockholder list to include the pledgee, transferee or other successors in interest as selling stockholder under this prospectus. The selling stockholder also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees, donees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholder may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholder may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholder from the sale of the common stock offered by the selling stockholder will be the purchase price of the common stock less discounts or commissions, if any. The selling stockholder reserves the right to accept and, together with its agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The selling stockholder also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that the selling stockholder meets the criteria and conforms to the requirements of that rule.

The selling stockholder and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. If the selling stockholder is an “underwriter” within the meaning of Section 2(11) of the Securities Act it will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the name of the selling stockholder, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholder that the anti-manipulation rules of Regulation M under the Exchange Act, may apply to sales of shares in the market and to the activities of the selling stockholder and its affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholder for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholder may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholder against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling stockholder to use commercially reasonable best efforts to cause the registration statement of which this prospectus constitutes a part to remain continuously effective until the earlier of (1) such date as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with such registration statement or (2) the date all of the shares beneficially owned by the selling stockholder may be sold under SEC Rule 144 without being subject to any volume, manner of sale or publicly available information requirements.

---

**LEGAL MATTERS**

Unless otherwise indicated in any accompanying prospectus supplement, Skadden, Arps, Slate, Meagher & Flom LLP will provide opinions regarding the authorization and validity of the securities. Skadden, Arps, Slate, Meagher & Flom LLP may also provide opinions regarding certain other matters. Any underwriters will be advised about legal matters by their own counsel, which will be named in an accompanying prospectus supplement.

---

## EXPERTS

Ernst & Young LLP, our independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2024, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

**Item 14. Other Expenses of Issuance and Distribution.**

The expenses relating to the registration of the securities will be borne by the registrant. All the amounts shown are estimates, except for the SEC registration fee.

Securities and Exchange Commission Registration Fee	\$ 23,754
Accounting Fees and Expenses	\$ 10,000
Legal Fees and Expenses	\$ 50,000
Printing Fees	\$ 5,694
Miscellaneous	\$ 10,552
Total	<u>\$ 100,000</u>

**Item 15. Indemnification of Directors and Officers.**

The Registrant is a Delaware corporation. Reference is made to Section 102(b)(7) of the Delaware General Corporation Law (the "DGCL"), which enables a corporation in its certificate of incorporation to eliminate or limit the personal liability of directors or officers of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director or officer, except:

- for any breach of the director's or officer's duty of loyalty to the corporation or its stockholders;
- for acts or omissions by a director or officer not in good faith or which involve intentional misconduct or a knowing violation of law;
- by a director pursuant to Section 174 of the DGCL (providing for liability of directors for unlawful payment of dividends or unlawful stock purchases or redemptions);
- for any transaction from which a director or officer derived an improper personal benefit; or
- for an officer in any action or in the right of the corporation.

The Registrant's Sixth Amended and Restated Certificate of Incorporation, as amended, limits the personal liability of a director to the Registrant and its stockholders for monetary damages for a breach of fiduciary duty as a director to the fullest extent permitted by the DGCL.

Reference is also made to Section 145 of the DGCL, which provides that a corporation may indemnify any persons, including directors and officers, who are, or are threatened to be made, parties to any threatened, pending or completed legal action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was a director, officer, employee or agent of such corporation or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such director, officer, employee or agent acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe that the person's conduct was unlawful. A Delaware corporation may indemnify directors and officers in an action by or in the right of the corporation under the same conditions, except that no indemnification is permitted without judicial approval if the director or officer is adjudged to be liable to the corporation. Where a director or officer is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses that such director or officer actually and reasonably incurred. The indemnification permitted under the DGCL is not exclusive, and a corporation is empowered to purchase and maintain insurance against liabilities whether or not indemnification would be permitted by statute.

The Registrant's Sixth Amended and Restated Certificate of Incorporation, as amended, and Amended and Restated Bylaws provide for indemnification of its directors and officers to the fullest extent currently permitted

by the DGCL. The Registrant also has indemnification agreements with its directors and officers. In addition, the Registrant maintains liability insurance for its directors and officers.

**Item 16. List of Exhibits.**

**Exhibit List**

<b><u>Exhibit No.</u></b>	<b><u>Description of Exhibits</u></b>
3.1	<a href="#">Certificate of Incorporation of Assembly Biosciences, Inc.</a> (incorporated by reference to Exhibit 3.1 to the registrant's Annual Report on Form 10-K filed on March 28, 2024).
3.2	<a href="#">Certificate of Amendment to Sixth Amended and Restated Certificate of Incorporation of Assembly Biosciences, Inc., dated February 9, 2024</a> (incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed on February 13, 2024).
3.3	<a href="#">Amended and Restated By-Laws</a> (incorporated by reference to Exhibit 3.1 to the registrant's Current Report on Form 8-K filed on December 13, 2024).
4.1*	<a href="#">Common Stock Purchase Agreement, dated October 15, 2023, between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on October 17, 2023).
4.2	<a href="#">Amendment No. 1 to Common Stock Purchase Agreement, dated June 17, 2024, by and between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on June 18, 2024).
4.2*	<a href="#">Investor Rights Agreement, dated October 15, 2023, between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on October 17, 2023).
4.3	<a href="#">Amendment No. 1 to Investor Rights Agreement, dated June 17, 2024, by and between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on June 18, 2024).
4.4	<a href="#">Securities Purchase Agreement, dated June 17, 2024, by and between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on June 18, 2024).
4.5	<a href="#">Warrant, purchased by Gilead Sciences, Inc. on June 17, 2024</a> (incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed on June 18, 2024).
4.6	<a href="#">Securities Purchase Agreement, dated August 8, 2025, by and between Assembly Biosciences, Inc. and Gilead Sciences, Inc.</a> (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on August 11, 2025).
4.7	<a href="#">Class A Warrant, purchased by Gilead Sciences, Inc. on August 8, 2025</a> (incorporated by reference to Exhibit 4.4 to the registrant's Current Report on Form 8-K filed on August 11, 2025).
4.8	<a href="#">Class B Warrant, purchased by Gilead Sciences, Inc. on August 8, 2025</a> (incorporated by reference to Exhibit 4.5 to the registrant's Current Report on Form 8-K filed on August 11, 2025).
5.1	<a href="#">Opinion of Skadden, Arps, Slate, Meagher &amp; Flom LLP.</a>
23.1	<a href="#">Consent of Independent Registered Public Accounting Firm.</a>
23.2	<a href="#">Consent of Skadden, Arps, Slate, Meagher &amp; Flom LLP (included in Exhibit 5.1).</a>
24.1	<a href="#">Powers of Attorney (included on signature pages hereto).</a>
107	<a href="#">Filing Fee Table</a>

\* Portions of this exhibit have been redacted in compliance with Regulation 5-K Item 601(b)(10).

**Item 17. Undertakings.**

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
  - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (i), (ii) and (iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement;

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
  - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of this registration statement as of the date the filed prospectus was deemed part of and included in this registration statement; and
  - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in this registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of this registration statement or made in a document incorporated or deemed incorporated by reference into this registration statement or prospectus that is part of this registration statement will, as to a

purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in this registration statement or prospectus that was part of this registration statement or made in any such document immediately prior to such effective date.

- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
  - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
  - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
  - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the SEC under Section 305(b) (2) of the Act.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement on Form S-3 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of South San Francisco, State of California on October 14, 2025.

### Assembly Biosciences, Inc.

By: /s/ Jason A. Okazaki  
Name: Jason A. Okazaki  
Title: Chief Executive Officer and President

In accordance with the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates stated. Each person whose signature appears below constitutes and appoints Jason A. Okazaki and John O. Gunderson and each of them severally, as his or her true and lawful attorney-in-fact and agent, each acting along with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any or all amendments (including post-effective amendments) and exhibits to the Registration Statement on Form S-3, and to any registration statement filed under SEC Rule 462, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the SEC, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement on Form S-3 has been signed by the following persons in the capacities indicated on October 14, 2025.

<u>Signature</u>	<u>Title</u>
<u>/s/ Jason A. Okazaki</u> Jason A. Okazaki, A.O., M.D.	Chief Executive Officer, President and Director (Principal Executive Officer)
<u>/s/ Jeanette M. Bjorkquist</u> Jeanette M. Bjorkquist	VP, Finance (Principal Financial Officer and Principal Accounting Officer)
<u>/s/ William R. Ringo, Jr.</u> William R. Ringo, Jr.	Chairman of the Board
<u>/s/ Anthony E. Altig</u> Anthony E. Altig	Director
<u>/s/ Tomas Cihlar, Ph.D.</u> Tomas Cihlar, Ph.D.	Director
<u>/s/ Gina Consylman</u> Gina Consylman	Director
<u>/s/ Robert D. Cook II</u> Robert D. Cook II	Director

<u>Signature</u>	<u>Title</u>
<u>/s/ Sir Michael Houghton, Ph.D.</u> Sir Michael Houghton, Ph.D.	Director
<u>/s/ Lisa R. Johnson-Pratt, M.D.</u> Lisa R. Johnson-Pratt, M.D.	Director
<u>/s/ Susan Mahony, Ph.D.</u> Susan Mahony, Ph.D.	Director
<u>/s/ John G. McHutchison, A.O., M.D.</u> John G. McHutchison, A.O., M.D.	Director

SKADDEN , ARPS , SLATE , MEAGHER & FLOM LLP  
 2000 AVENUE OF THE STAR S  
 LOS ANGELES, CALIFORNIA 9 0067

TEL: (213) 687-5000  
 FAX: (213) 687-5600

[www.skadden.com](http://www.skadden.com)

FIRM/AFFILIATE  
 OFFICES

BOSTON  
 CHICAGO  
 HOUSTON  
 NEW YORK  
 PALO ALTO  
 WASHINGTON, D.C.  
 WILMINGTON

ABU DHABI  
 BEIJING  
 BRUSSELS  
 FRANKFURT  
 HONG KONG  
 LONDON  
 MUNICH  
 PARIS  
 SÃO PAULO  
 SEOUL  
 SINGAPORE  
 TOKYO  
 TORONTO

October 14, 2025

Assembly Biosciences, Inc.  
 Two Tower Place, 7<sup>th</sup> Floor  
 South San Francisco, California 94080

Re: Assembly Biosciences, Inc.  
Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as special United States counsel to Assembly Biosciences, Inc., a Delaware corporation (the "Company"), in connection with the resale by Gilead Sciences, Inc. (the "Selling Stockholder") of: (i) 1,089,472 shares of common stock, par value \$0.001 per share (the "Common Stock"), of the Company (the "2023 Shares"), issued to the Selling Stockholder pursuant to the Common Stock Purchase Agreement, dated as of October 15, 2023, as amended on June 17, 2024 (the "Common Stock Purchase Agreement"), by and between the Company and the Selling Stockholder; (ii) 179,500 shares of Common Stock (the "2024 Common Shares") issued to the Selling Stockholder pursuant to the Securities Purchase Agreement, dated as of June 17, 2024 (the "2024 Securities Purchase Agreement"), by and between the Company and the Selling Stockholder; (iii) 179,500 shares of Common Stock (the "2024 Warrant Shares") underlying a warrant (the "2024 Warrant") to purchase shares of the Common Stock, issued to the Selling Stockholder pursuant to the 2024 Securities Purchase Agreement; (iv) 940,499 shares of Common Stock issued to the Selling Stockholder pursuant to the Common Stock Purchase Agreement; (v) 2,295,920 shares of Common Stock (the "2025 Common Shares") and, collectively with the 2023 Shares and the 2024 Common Shares, the "Common Shares") issued to the Selling Stockholder pursuant to the Securities Purchase Agreement, dated as of August 8, 2025, by and between the Company and the Selling Stockholder (the "2025 Securities Purchase Agreement" and, collectively with the Common Stock Purchase Agreement and the 2024 Securities Purchase Agreement, the "Purchase Agreements"); (vi) 1,147,960 shares of Common Stock (the "Class A Warrant Shares") underlying a warrant (the "Class A Warrant") to purchase shares of Common Stock, issued to the Selling Stockholder pursuant to the 2025 Securities Purchase Agreement; and (vii) 1,147,960 shares of Common Stock (together with the 2024 Warrant Shares and Class A Warrant Shares, the "Warrant Shares") underlying a warrant (the "Class B Warrant" and, collectively with the 2024 Warrant and the Class A Warrant, the "Warrants") to purchase shares of Common Stock, issued to the Selling Stockholder pursuant to

the 2025 Securities Purchase Agreement. The Common Shares and Warrant Shares are collectively referred to herein as the “Shares”).

This opinion letter is being furnished in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act of 1933 (the “Securities Act”).

In rendering the opinions stated herein, we have examined and relied upon the following:

(a) the registration statement on Form S-3 of the Company relating to the Shares filed on the date hereof with the Securities and Exchange Commission (the “Commission”) under the Securities Act allowing for delayed offerings pursuant to Rule 415 of the General Rules and Regulations under the Securities Act (the “Rules and Regulations”), including the information deemed to be a part of the registration statement pursuant to Rule 430B of the Rules and Regulations (such registration statement being hereinafter referred to as the “Registration Statement”);

(b) the prospectus, dated October 14, 2025, (the “Base Prospectus”), which forms a part of and is included in the Registration Statement;

(c) an executed copy of the Common Stock Purchase Agreement;

(d) an executed copy of the 2024 Securities Purchase Agreement;

(e) an executed copy of the 2025 Securities Purchase Agreement;

(f) an executed copy of the 2024 Warrant;

(g) an executed copy of the Class A Warrant;

(h) an executed copy of the Class B Warrant;

(i) an executed copy of a certificate of John O. Gunderson, Vice President, General Counsel and Corporate Secretary of the Company, dated the date hereof (the “Secretary’s Certificate”);

(j) a copy of the Company’s Sixth Amended and Restated Certificate of Incorporation, as in effect from May 25, 2022 to February 9, 2024 and certified pursuant to the Secretary’s Certificate;

(k) a copy of the Company’s Sixth Amended and Restated Certificate of Incorporation, as amended by the Certificate of Amendment thereto, as in effect since February 9, 2024, and as in effect as of the date hereof, certified by the Secretary of State of the State of Delaware as of October 1, 2025, and certified pursuant to the Secretary’s Certificate (the “Certificate of Incorporation”);

(l) a copy of the Company's Amended and Restated Bylaws, as amended, as in effect from December 7, 2022 to December 12, 2024 and certified pursuant to the Secretary's Certificate;

(m) a copy of the Company's Amended and Restated Bylaws as in effect since December 12, 2024, and certified pursuant to the Secretary's Certificate (the "Bylaws"); and

(n) a copy of certain resolutions of the Board of Directors of the Company, certified pursuant to the Secretary's Certificate.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and the Selling Stockholder and such agreements, certificates and receipts of public officials, certificates of officers or other representatives of the Company, the Selling Stockholder and others, and such other documents as we have deemed necessary or appropriate as a basis for the opinions stated below.

In our examination, we have assumed the genuineness of all signatures, including electronic signatures, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as facsimile, electronic, certified or photocopied copies, and the authenticity of the originals of such copies. With respect to our opinion set forth in paragraph 2 below, we have assumed that (i) the Company received or will receive the consideration for the Shares set forth in the Transaction Documents (as defined below) and the applicable resolutions of the Board of Directors of the Company approving the issuance of the Shares, (ii) each issuance of the Shares has been or will be registered in the Company's share registry and (iii) the Exercise Price (as defined in each Warrant) will be at least equal to the par value of such Warrant Shares at the time of exercise. As to any facts relevant to the opinions stated herein that we did not independently establish or verify, we have relied upon statements and representations of officers and other representatives of the Company and the Selling Stockholder and others and of public officials, including the facts and conclusions set forth in the Certificate of Incorporation and the Secretary's Certificate and the factual representations and warranties set forth in the Purchase Agreements.

We do not express any opinion with respect to the laws of any jurisdiction other than the General Corporation Law of the State of Delaware (the "DGCL") (all of the foregoing being referred to as "Opined-on Law"). The Purchase Agreements and the Warrants are referred to herein collectively as the "Transaction Documents."

Based upon the foregoing and subject to the qualifications and assumptions stated herein, we are of the opinion that:

1. The Shares have been duly authorized by all requisite corporate action on the part of the Company under the DGCL.

2. The Common Shares have been, and the Warrant Shares when issued upon exercise of the Warrants in accordance with their terms will be, validly issued, fully paid and nonassessable.

In addition, in rendering the foregoing opinions we have further assumed that:

(a) the Company is duly incorporated and is validly existing and in good standing as a corporation under the laws of the jurisdiction of its organization, (ii) has requisite legal status and legal capacity under the laws of the jurisdiction of its organization and (iii) has complied and will comply with all aspects of the laws of the jurisdiction of its organization in connection with the transactions contemplated by, and the performance of its obligations under, the Transaction Documents;

(b) the Company has the corporate power and authority to execute, deliver and perform all its obligations under each of the Transaction Documents;

(c) neither the execution and delivery by the Company of the Transaction Documents nor the performance by the Company of its obligations thereunder, including the issuance or sale, as applicable, of the Shares: (i) constituted or will constitute a violation of, or a default under, any lease, indenture, agreement or other instrument to which the Company or its property is subject (except that we do not make the assumption set forth in this clause (i) with respect to those agreements or instruments which are listed in Part II of the Registration Statement or the Company's Annual Report on Form 10-K for the year ended December 31, 2024, although we have assumed compliance with any covenant, restriction or provision with respect to financial ratios or tests or any aspect of the financial condition or results of operations of the Company or any of its subsidiaries contained in such agreements or instruments), (ii) contravened or will contravene any order or decree of any governmental authority to which the Company or its property is subject, or (iii) violated or will violate any law, rule or regulation to which the Company or its property is subject (except that we do not make the assumption set forth in this clause (iii) with respect to Opined-on-Law);

(d) the Company's issuance of the Common Shares did not or does not, and of the Warrant Shares will not, (i) except to the extent expressly stated in the opinions contained herein, violate any statute to which the Company or such issuance is subject, or (ii) constitute a violation of, or a breach under, or require the consent or approval of any other person under, any agreement or instrument binding on the Company (except that we do not make this assumption with respect to the Certificate of Incorporation, the Bylaws or those agreements or instruments expressed to be governed by the laws of the State of New York which are listed in Part II of the Registration Statement or the Company's Annual Report on Form 10-K for the year ended December 31, 2024, although we have assumed compliance with any covenant, restriction or provision with respect to financial ratios or tests or any aspect of the financial condition or results of operations of the Company contained in such agreements or instruments);

(e) neither the execution and delivery by the Company of the Transaction Documents nor the performance by the Company of its obligations thereunder, including the issuance or sale, as applicable, of the Shares, required or will require the consent, approval, licensing or authorization of, or any filing, recording or registration with, any governmental authority under any law, rule or regulation of any jurisdiction; and

(f) the Company's authorized capital stock is as set forth in the Certificate of Incorporation, and we have relied solely on the certified copy thereof issued by the Secretary of State of the State of Delaware and have not made any other inquiries or investigations, and we have further assumed that the Company will continue to have sufficient authorized shares of Common Stock.

This opinion letter shall be interpreted in accordance with customary practice of United States lawyers who regularly give opinions in transactions of this type.

We hereby consent to the reference to our firm under the heading "Legal Matters" in the Prospectus. We also hereby consent to the filing of this opinion letter with the Commission as an exhibit to the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the Rules and Regulations.

Very truly yours,

/s/ Skadden, Arps, Slate, Meagher & Flom LLP

**Consent of Independent Registered Public Accounting Firm**

We consent to the reference to our firm under the caption "Experts" in this Registration Statement (Form S-3) and related Prospectus of Assembly Biosciences, Inc. for the registration of common stock and to the incorporation by reference therein of our report dated March 20, 2025, with respect to the consolidated financial statements of Assembly Biosciences, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2024, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

San Jose, California  
October 14, 2025

# Calculation of Filing Fee Tables

S-3

## ASSEMBLY BIOSCIENCES, INC.

Table 1: Newly Registered and Carry Forward Securities

Not Applicable

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
<b>Newly Registered Securities</b>												
Fees to be Paid	1 Equity	Common Stock, par value \$0.001 per share	457(a)	6,980,811	\$ 24.64	172,007,183.00	\$ 0.0001381	\$ 23,754.19				
Fees Previously Paid												
<b>Carry Forward Securities</b>												
Carry Forward Securities												
Total Offering Amounts:							\$	\$ 23,754.19				
						172,007,183.00						
Total Fees Previously Paid:								\$ 0.00				
Total Fee Offsets:								\$ 0.00				
Net Fee Due:								\$ 23,754.19				

### Offering Note

<sup>1</sup> (1) Consists of: (a) 1,089,472 shares acquired by the selling stockholder pursuant to that certain Common Stock Purchase Agreement, dated October 15, 2023, between the registrant and the selling stockholder, which was amended on June 17, 2024 (as amended, the "Common Stock Purchase Agreement"); (b) 179,500 shares acquired by the selling stockholder pursuant to that certain Securities Purchase Agreement, dated June 17, 2024 (the "2024 Securities Purchase Agreement"); (c) 179,500 shares underlying the warrant to purchase common stock pursuant to the 2024 Securities Purchase Agreement; (d) 940,499 shares acquired by the selling stockholder on December 19, 2024 pursuant to the terms of the Common Stock Purchase Agreement, (e) 2,295,920 shares acquired by the selling stockholder pursuant to that certain Securities Purchase Agreement, dated August 8, 2025 (the "2025 Securities Purchase Agreement"), (f) 1,147,960 shares underlying the Class A Warrant to purchase common stock pursuant to the 2025 Securities Purchase Agreement; and (g) 1,147,960 shares underlying the Class B Warrant to purchase common stock pursuant to the 2025 Securities Purchase Agreement. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the shares of common stock being registered hereunder include such indeterminate number of shares of common stock as may be issuable with respect to the shares of common stock being registered hereunder as a result of any stock dividend, stock split, recapitalization or similar transaction. (2) Estimated solely for the purpose of calculating the amount of registration fee pursuant to Rule 457(c) of the Securities Act, on the basis of the average of the high and low prices for a share of the registrant's common stock as reported on the Nasdaq Global Select Market on October 8, 2025, which date is within five business days prior to the filing of this Registration Statement.

Table 2: Fee Offset Claims and Sources

Not Applicable

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
<b>Rules 457(b) and 0-11(a)(2)</b>											
Fee Offset Claims	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fee Offset Sources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Rule 457(p)</b>											
Fee Offset Claims	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fee Offset Sources	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3: Combined Prospectuses

Not Applicable

Security Type	Security Class Title	Amount of Securities	Maximum Aggregate Offering Price of	Form Type	File Number	Initial Effective Date

