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

**SCHEDULE 13D**

Under the Securities Exchange Act of 1934

**(Amendment No. 3)\***

**ASSEMBLY BIOSCIENCES, INC.**

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**(Name of Issuer)**

**Common Stock, par value \$0.001**

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**(Title of Class of Securities)**

**045396108**

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**(CUSIP Number)**

**Gilead Sciences, Inc.  
333 Lakeside Drive,  
Foster City, CA, 94404  
650-574-3000**

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

**08/08/2025**

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**(Date of Event Which Requires Filing of This Statement)**

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

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

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**SCHEDULE 13D**

**CUSIP No. 045396108**

Name of reporting person

1

GILEAD SCIENCES, INC.

2

Check the appropriate box if a member of a Group (See Instructions)

(a)

(b)

3 SEC use only  
Source of funds (See Instructions)

4 WC  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE

Sole Voting Power

7

4,505,391.00

Number of Shares Beneficially

Shared Voting Power

8

Owned by Each

0.00

Reporting Person

9

4,505,391.00

With: Shared Dispositive Power

10

0.00

Aggregate amount beneficially owned by each reporting person

11 4,505,391.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12   
Percent of class represented by amount in Row (11)

13 29 %

Type of Reporting Person (See Instructions)

14 CO

**Comment for Type of Reporting Person:** Comment relating to row 13: Based upon 15,560,009 shares of Common Stock of the Issuer issued and outstanding upon the closing of the Issuer's most recent public offering, which was completed on August 11, 2025, as disclosed in the prospectus supplement (the "Prospectus Supplement") filed with the Securities and Exchange Commission (the "SEC") on August 11, 2025.

## SCHEDULE 13D

Item 1. Security and Issuer

Title of Class of Securities:

(a) Common Stock, par value \$0.001

Name of Issuer:

(b) ASSEMBLY BIOSCIENCES, INC.

Address of Issuer's Principal Executive Offices:

(c) Two Tower Place, 7th Floor, South San Francisco, CALIFORNIA , 94080.

**Item 1 Comment:** This Amendment No. 3 ("Amendment No. 3") amends and supplements the Schedule 13D filed by the Reporting Person with the SEC on October 25, 2023, as amended by Amendment No. 1 filed with the SEC on June 20, 2024 and Amendment No. 2 filed with the SEC on December 23, 2024 (as amended by Amendment No. 2, the "Schedule 13D"), which relates to the Common Stock of the Issuer. Unless otherwise indicated, all capitalized terms used herein shall have the meanings set forth in the Schedule 13D and, unless amended hereby, all information previously disclosed remains unchanged.

Item 2. Identity and Background

(c) Item 2(c) is amended and restated to read as follows: The principal business of the Reporting Person is to develop and commercialize innovative medicines in areas of unmet medical need and engage in any other activity or business lawfully carried on by a corporation organized under the laws of the State of Delaware. The directors and executive officers of the Reporting Person are set forth on Exhibit 99.1 filed herewith. Exhibit 99.1 sets forth the following information with respect to each such person: (i) name; (ii) business address; (iii) position with the Reporting Person and present principal occupation or employment and, for persons not employed by the Reporting Person, the name, principal business and address of any corporation or other organization in which such employment is conducted; and (iv) citizenship.

(f) Item 2(f) is amended and restated to read as follows: The jurisdiction of organization of the Reporting Person is set forth in subsection (a) above. The citizenship of each of the individuals referred to in Exhibit 99.1 is set forth on Exhibit 99.1.

### Item 3. Source and Amount of Funds or Other Consideration

Item 3 is amended to add the following paragraph immediately following the last paragraph: On August 8, 2025, Gilead entered into a Securities Purchase Agreement with the Issuer (the "2025 Purchase Agreement"), pursuant to which Gilead purchased from the Issuer 2,295,920 shares of Common Stock, a Series A warrant to purchase 1,147,960 shares of Common Stock (the "Series A Warrant"), and a Series B warrant to purchase 1,147,960 shares of Common Stock (the "Series B Warrant"), at a combined purchase price of \$19.60 per share of Common Stock and accompanying one half of one Series A Warrant and one half of one Series B Warrant, which purchase closed on August 11, 2025. The total consideration for such purchase was approximately \$45 million and such consideration was obtained from the available cash resources of Gilead.

### Item 4. Purpose of Transaction

Item 4 is amended to add the following immediately following the last paragraph: 2025 Securities Purchase Agreement and Warrants On August 8, 2025, pursuant to the 2025 Purchase Agreement, Gilead purchased from the Issuer 2,295,920 shares of Common Stock, the Series A Warrant, and the Series B Warrant, at a combined purchase price of \$19.60 per share of Common Stock and accompanying one half of one Series A Warrant and one half of one Series B Warrant. The Series A Warrant is exercisable, in whole or in part, immediately at an exercise price of \$21.60 per share and expires on the earlier of (i) 5:00 p.m. (New York City time) on August 11, 2030 and (ii) the date that is 30 days after the public announcement (whether by press release, document filed or furnished with the SEC, or other form of public announcement) that the Issuer has completed enrollment (of at least 200 patients total) for its Phase 2 clinical study evaluating ABI-5366 vs. valacyclovir. The Series B Warrant is exercisable, in whole or in part, on or after November 15, 2026 at an exercise price of \$21.60 per share and expires on December 31, 2026, provided that the Series B Warrant will automatically terminate in full and be extinguished and shall no longer be exercisable in the event that the Issuer publicly announces prior to November 15, 2026 that it has received at least \$75.0 million in the aggregate of non-dilutive capital in connection with a collaboration agreement. Each of the Series A Warrant and the Series B Warrant cannot be exercised by Gilead if, after giving effect thereto, Gilead would beneficially own, as determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, more than 19.99% of the Issuer's outstanding shares of Common Stock, subject to certain exceptions. The foregoing descriptions of the 2025 Purchase Agreement, the Series A Warrant, and the Series B Warrant are not complete and are subject to and qualified in their entirety by reference to the full text of such documents, which are attached as Exhibits 99.2, 99.3, and 99.4 hereto and incorporated herein by reference.

### Item 5. Interest in Securities of the Issuer

(a) Item 5(a) of the Schedule 13D is hereby amended and restated to read as follows: Number of shares beneficially owned: Gilead Sciences, Inc. - 4,505,391 Shares Percent of class: Gilead Sciences, Inc. - 29.0% The percent ownership was calculated based upon 15,560,009 shares of Common Stock of the Issuer issued and outstanding upon the closing of the Issuer's most recent public offering, which was completed on August 11, 2025, as disclosed in the Prospectus Supplement.

(b) Item 5(b) of the Schedule 13D is hereby amended and restated to read as follows: (i) Sole power to vote or to direct the vote: Gilead Sciences, Inc. - 4,505,391 shares (ii) Shared power to vote or to direct the vote: Gilead Sciences, Inc. - 0 shares (iii) Sole power to dispose or to direct the disposition of: Gilead Sciences, Inc. - 4,505,391 shares (iv) Shared power to dispose or to direct the disposition of: Gilead Sciences, Inc. - 0 shares To the best knowledge of the Reporting Person, none of the individuals listed on Exhibit 99.1 beneficially owns any of the Issuer's Common Stock. The Reporting Person beneficially owns a warrant to purchase 179,500 shares of Common Stock (the "2024 Warrant") that was acquired from the Issuer on June 17, 2024, the Series A Warrant, and the Series B Warrant (collectively, the "Warrants"). Each of the Warrants is subject to a limitation pursuant to which the Reporting Persons may not exercise such Warrant if such exercise would cause the Reporting Person to beneficially own Common Stock in an amount exceeding the "Beneficial Ownership Limitation" (as defined in such Warrant) then in effect. The Beneficial Ownership Limitation with respect to each Warrant is subject to adjustment upon 61 days' notice by the holder of such Warrant to the Issuer and, as of the date of this Amendment No. 3, was 19.99% of the number of shares of Common Stock outstanding. As a result, none of the aggregate of 2,475,420 shares of Common Stock underlying the Warrants are deemed to be beneficially owned by the Reporting Persons.

(c) Item 5(c) of the Schedule 13D is hereby amended and restated to read as follows: Except as reported in this Amendment No. 3, neither the Reporting Person nor, to the best knowledge of the Reporting Person, any of the individuals listed on Exhibit 99.1 have effected any transactions in the Common Stock during the past sixty (60) days.

### Item 7. Material to be Filed as Exhibits.

Exhibit 99.1 - List of Executive Officers and Directors of Gilead Sciences, Inc. Exhibit 99.2 - Securities Purchase Agreement, dated August 8, 2025, by and between the Company and Gilead Sciences, Inc. (incorporated by reference to Exhibit 10.1 to the Issuer's Current Report on Form 8-K filed with the SEC on August 11, 2025) Exhibit 99.3 - Private Placement Class A Warrant (incorporated by reference to Exhibit 4.4 to the Issuer's Current Report on Form 8-K filed with the SEC on August 11, 2025) Exhibit 99.4 - Private Placement Class B Warrant (incorporated by reference to Exhibit 4.5 to the Issuer's Current Report on Form 8-K filed with the SEC on August 11, 2025)

SIGNATURE

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

GILEAD SCIENCES, INC.

Signature: /s/ Andrew D. Dickinson

Name/Title: Andrew D. Dickinson, Chief Financial Officer

Date: 08/12/2025

The name and present principal occupation of each of the executive officers and directors of Gilead Sciences, Inc. are set forth below. Unless otherwise noted, each of these persons have as their business address c/o Gilead Sciences, Inc., 333 Lakeside Drive, Foster City, California 94404.

Name	Title	Citizenship	Principal Occupation and, if not employed by Gilead Sciences, Inc., Name, Principal Business and Address of Employer
Daniel P. O'Day	Chief Executive Officer, Chairman and Director	United States	*
Jacqueline K. Barton, Ph.D.	Director	United States	Professor Emerita, California Institute of Technology
Jeffrey A. Bluestone, Ph.D.	Director	United States	President and Chief Executive Officer, Sonoma Biotherapeutics
Sandra J. Horning, M.D.	Director	United States	Retired Chief Medical Officer, Roche Inc.
Kelly A. Kramer	Director	United States	Retired Executive Vice President and Chief Financial Officer, Cisco Systems, Inc.
Ted W. Love, M.D.	Director	United States	Chair of Board of Directors, Biotechnology Innovation Organization
Harish Manwani	Director	Singapore	Senior Operating Partner, Blackstone
Javier J. Rodriguez	Director	Mexico	Chief Executive Officer, DaVita, Inc.
Anthony Welters	Director	United States	Lead Independent Director; Chairman and Chief Executive Officer, CINQ Care
Andrew D. Dickinson	Chief Financial Officer	United States	*
Johanna Mercier	Chief Commercial Officer	United States	*
Dietmar Berger, M.D., Ph.D.	Chief Medical Officer	United States	*
Deborah H. Telman	Executive Vice President, Corporate Affairs and General Counsel	United States	*

\* The present principal occupation for each of these individuals is officer of Gilead Sciences, Inc. and officer, trustee and/or director of other affiliated entities.