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

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**FORM S-8**  
**REGISTRATION STATEMENT**  
*UNDER*  
**THE SECURITIES ACT OF 1933**

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**Generation Bio Co.**

(Exact Name of Registrant as Specified in Its Charter)

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**Delaware**  
(State or Other Jurisdiction of  
Incorporation or Organization)

**301 Binney Street**  
**Cambridge, Massachusetts**  
(Address of Principal Executive Offices)

**81-4301284**  
(I.R.S. Employer  
Identification No.)

**02142**  
(Zip Code)

**2020 Stock Incentive Plan**  
**2020 Employee Stock Purchase Plan**  
(Full Title of the Plan)

**Geoff McDonough, M.D.**  
**President and Chief Executive Officer**  
**301 Binney Street**  
**Cambridge, MA 02142**  
(Name and Address of Agent for Service)

**(617) 655-65000**  
(Telephone Number, Including Area Code, of Agent for Service)

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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.

Large accelerated filer   
Non-accelerated filer

Accelerated filer   
Smaller reporting company   
Emerging growth company

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.

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**CALCULATION OF REGISTRATION FEE**

<b>Title of Securities to be Registered</b>	<b>Amount to be Registered(1)</b>	<b>Proposed Maximum Offering Price Per Share</b>	<b>Proposed Maximum Aggregate Offering Price</b>	<b>Amount of Registration Fee</b>
Common Stock, \$0.0001 par value per share	2,348,500 shares (2)	\$33.76 (3)	\$79,285,360.00 (3)	\$8,651.00

- (1) In accordance with Rule 416 under the Securities Act of 1933, as amended, this registration statement shall be deemed to cover any additional securities that may from time to time be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.
  - (2) Consists of (i) 1,878,800 additional shares issuable under the 2020 Stock Incentive Plan and (ii) 469,700 additional shares issuable under the 2020 Employee Stock Purchase Plan.
  - (3) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and 457(h) of the Securities Act of 1933, as amended, and based upon the average of the high and low prices of the Registrant's Common Stock as reported on the Nasdaq Global Market on March 17, 2021.
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**PART I**  
**Statement of Incorporation by Reference**

This Registration Statement on Form S-8, relating to the 2020 Stock Incentive Plan and the 2020 Employee Stock Purchase Plan of Generation Bio Co. (the “Registrant”), is being filed for the purpose of registering additional securities of the same class as other securities for which a Registration Statement on Form S-8 has previously been filed and is effective. Pursuant to General Instruction E to Form S-8, except as otherwise set forth below, this Registration Statement incorporates by reference the contents of the Registration Statement on [Form S-8](#), File No. 333-239116, relating to the 2017 Stock Incentive Plan, as amended, of the Registrant, the 2020 Stock Incentive Plan of the Registrant, and the 2020 Employee Stock Purchase Plan of the Registrant, filed by the Registrant with the Securities and Exchange Commission on June 12, 2020 and the information required by Part II is omitted, except as supplemented by the information set forth below.

**PART II**  
**INFORMATION REQUIRED IN THE REGISTRATION STATEMENT**

**Item 8. Exhibits.**

The following exhibits are incorporated herein by reference:

<u>Number</u>	<u>Description</u>
4.1	<a href="#">Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant’s Current Report on Form 8-K, File No. 001-39319, filed June 16, 2020).</a>
4.2	<a href="#">Amended and Restated By-Laws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant’s Current Report on Form 8-K, File No. 001-39319, filed June 16, 2020).</a>
5.1*	<a href="#">Opinion of Wilmer Cutler Pickering Hale and Dorr LLP, counsel to the Registrant</a>
23.1*	<a href="#">Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)</a>
23.2*	<a href="#">Consent of Ernst &amp; Young LLP, independent registered public accounting firm</a>
24.1*	<a href="#">Power of attorney (included on the signature pages of this registration statement)</a>
99.1	<a href="#">2020 Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant’s Registration Statement on Form S-1, File No. 333-238608, filed May 22, 2020).</a>
99.2	<a href="#">2020 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.8 to the Registrant’s Registration Statement on Form S-1, File No. 333-238608, filed May 22, 2020).</a>

\* Filed herewith

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## 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-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Cambridge, Massachusetts, on this 18th day of March, 2021.

Generation Bio Co.

By: /s/ Geoff McDonough, M.D.

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Geoff McDonough, M.D.

President and Chief Executive Officer

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## POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of Generation Bio Co., hereby severally constitute and appoint Geoff McDonough, M.D., Matthew Norkunas, M.D., MBA, Jennifer Elliott, Ph.D., J.D., and Shawna-Gay White, J.D. and each of them singly (with full power to each of them to act alone), our true and lawful attorneys with full power of substitution and resubstitution in each of them for him or her and in his or her name, place and stead, and in any and all capacities, to sign for us and in our names in the capacities indicated below, the registration statement on Form S-8 filed herewith and any and all subsequent amendments to said registration statement, and generally to do all such things in our names and on our behalf in our capacities as officers and directors to enable Generation Bio Co. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said registration statement and any and all amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Geoff McDonough</u> Geoff McDonough, M.D.	President, Chief Executive Officer and Director (principal executive officer)	March 18, 2021
<u>/s/ Matthew Norkunas</u> Matthew Norkunas, M.D., MBA	Chief Financial Officer (principal financial officer)	March 18, 2021
<u>/s/ Gustav Christensen</u> Gustav Christensen	Director	March 18, 2021
<u>/s/ Ron Cooper</u> Ron Cooper	Director	March 18, 2021
<u>/s/ Jeffrey Jonas</u> Jeffrey Jonas, M.D.	Director	March 18, 2021
<u>/s/ Donald Nicholson</u> Donald Nicholson, Ph.D.	Director	March 18, 2021
<u>/s/ Anthony Quinn</u> Anthony Quinn, M.B. Ch.B., Ph.D.	Director	March 18, 2021
<u>/s/ Jason Rhodes</u> Jason Rhodes	Director	March 18, 2021
<u>/s/ Charles Rowland</u> Charles Rowland	Director	March 18, 2021
<u>/s/ Catherine Stehman-Breen</u> Catherine Stehman-Breen, M.D.	Director	March 18, 2021

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March 18, 2021

Generation Bio Co.  
301 Binney Street  
Cambridge, MA 02142

Re: 2020 Stock Incentive Plan  
2020 Employee Stock Purchase Plan

Ladies and Gentlemen:

We have assisted in the preparation of a Registration Statement on Form S-8 (the "Registration Statement") to be filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to an aggregate of 2,348,500 shares of common stock, \$0.0001 par value per share (the "Shares"), of Generation Bio Co., a Delaware corporation (the "Company"), issuable under the Company's 2020 Stock Incentive Plan and 2020 Employee Stock Purchase Plan (collectively, the "Plans").

We have examined the Certificate of Incorporation and Bylaws of the Company, each as amended and restated to date, and originals, or copies certified to our satisfaction, of all pertinent records of the meetings of the directors and stockholders of the Company, the Registration Statement and such other documents relating to the Company as we have deemed material for the purposes of this opinion.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, photostatic or other copies, the authenticity of the originals of any such documents and the legal competence of all signatories to such documents.

We assume that the appropriate action will be taken, prior to the offer and sale of the Shares in accordance with the Plans, to register and qualify the Shares for sale under all applicable state securities or "blue sky" laws.

We express no opinion herein as to the laws of any state or jurisdiction other than the state laws of the Commonwealth of Massachusetts, the General Corporation Law of the State of Delaware and the federal laws of the United States of America.

It is understood that this opinion is to be used only in connection with the offer and sale of the Shares while the Registration Statement is in effect.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when the Shares are issued and paid for in accordance with the terms and conditions of the Plans, the Shares will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion with the Commission in connection with the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act. In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

WILMER CUTLER PICKERING HALE AND DORR LLP

By: /s/ Stuart M. Falber

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Stuart M. Falber, a Partner

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**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the 2020 Stock Incentive Plan and 2020 Employee Stock Purchase Plan of Generation Bio Co. of our report dated March 18, 2021, with respect to the consolidated financial statements of Generation Bio Co. included in its Annual Report (Form 10-K) for the year ended December 31, 2020, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP  
Boston, Massachusetts  
March 18, 2021

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