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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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**AVROBIO, INC.**  
(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction of  
incorporation or organization)  
**One Kendall Square  
Building 300, Suite 201  
Cambridge, Massachusetts**  
(Address of Principal Executive Offices)

**81-0710585**  
(I.R.S. Employer  
Identification Number)

**02139**  
(Zip Code)

**2018 Stock Option and Incentive Plan  
2018 Employee Stock Purchase Plan**  
(Full Title of the Plans)

**Geoff MacKay**  
**President and Chief Executive Officer**  
**One Kendall Square  
Building 300, Suite 201  
Cambridge, MA 02139**  
(Name and address of agent for service)

**(617) 914-8420**  
(Telephone number, including area code, of agent for service)

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*Copies to:*

**Arthur R. McGivern, Esq.  
James Xu, Esq.  
Goodwin Procter LLP  
100 Northern Avenue  
Boston, Massachusetts 02210  
(617) 570-1000**

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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	952,265 shares(2)	\$16.84(3)	\$16,036,142.60	\$1,943.59
Common Stock, \$0.0001 par value per share	238,066 shares(4)	\$14.31(5)	\$3,406,724.46	\$412.90

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement shall also cover any additional shares of common stock which become issuable under the Registrant's 2018 Stock Option and Incentive Plan (the "Plan") and 2018 Employee Stock Purchase Plan (the "ESPP") by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without the receipt of consideration which results in an increase in the number of the Registrant's outstanding shares of common stock.
- (2) Represents an automatic increase of 952,265 shares of Common Stock to the number of shares available for issuance under the Plan, effective January 1, 2019. Shares available for issuance under the Plan were previously registered on a registration statement on Form S-8 filed with the Securities and Exchange Commission on June 21, 2018 (Registration No. 333-225788).
- (3) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(h) of the Securities Act, and based on the average of the high and low sale prices of the Registrant's common stock, as quoted on the Nasdaq Global Market, on March 18, 2019.
- (4) Represents an automatic increase of 238,066 shares of Common Stock to the number of shares available for issuance under the ESPP, effective January 8, 2019. Shares available for issuance under the ESPP were previously registered on a registration statement on Form S-8 filed with the Securities and Exchange Commission on June 21, 2018 (Registration No. 333-225788).
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457 of the Securities Act, and based on 85% of \$16.84 per share, which represents the average of the high and low prices of the Registrant's common stock reported on the Nasdaq Global Select Market on March 18, 2019. Pursuant to the ESPP, the purchase price of the shares of common stock reserved for issuance thereunder will be 85% of the fair market value of a share of common stock on the first trading day of the offering period or on the exercise date, whichever is less.

## EXPLANATORY NOTE

This Registration Statement on Form S-8 registers additional shares of Common Stock under the Registrant's Plan and ESPP.

The number of shares of common stock reserved and available for issuance under the Plan is subject to an automatic annual increase on each January 1, beginning in 2019, by an amount equal to the lesser of (i) 4.0% of the number of shares of common stock issued and outstanding on the immediately preceding December 31 and (ii) such amount as determined by the Administrator (as defined in the Plan), currently the Compensation Committee of the Registrant's Board of Directors. Accordingly, on January 1, 2019, the number of shares of common stock reserved and available for issuance under the Plan increased by 952,265 shares.

The number of shares of common stock reserved and available for issuance under the ESPP is subject to an automatic annual increase on each January 1, beginning in 2019, by an amount equal to the lesser of (i) 1.0% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, (ii) 1,115,700 shares or (iii) such amount as determined by the Administrator (as defined in the ESPP), currently the Compensation Committee of the Registrant's Board of Directors. Accordingly, on January 1, 2019, the number of shares of common stock reserved and available for issuance under the ESPP increased by 238,066 shares.

The additional shares described above are of the same class as other securities relating to the Plan for which the Registrant's registration statement filed on Form S-8 (Registration No. 333-225788) on June 21, 2018, is effective. The information contained in the Registrant's registration statement on Form S-8 (Registration No. 333-225788) is hereby incorporated by reference pursuant to General Instruction E.

**Part II**

**INFORMATION REQUIRED IN THE REGISTRATION STATEMENT**

**Item 8. Exhibits.**

<b>Exhibit No.</b>	<b>Description</b>
4.1	<a href="#"><u>Fourth Amended and Restated Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on June 25, 2018 (File No. 001-38537)).</u></a>
4.2	<a href="#"><u>Amended and Restated By-laws (Incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed on June 25, 2018 (File No. 001-38537)).</u></a>
4.3	<a href="#"><u>Second Amended and Restated Investors' Rights Agreement by and among the Registrant and certain of its stockholders, dated January 9, 2018 (Incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-225213)).</u></a>
5.1*	<a href="#"><u>Opinion of Goodwin Procter LLP</u></a>
23.1*	<a href="#"><u>Consent of Ernst &amp; Young LLP, Independent Registered Public Accounting Firm.</u></a>
23.2	<a href="#"><u>Consent of Goodwin Procter LLP (included in Exhibit 5.1)</u></a>
24.1	<a href="#"><u>Power of Attorney (included on signature page)</u></a>
99.1	<a href="#"><u>2018 Stock Option and Incentive Plan and forms of award agreements thereunder (Incorporated by reference to Exhibit 10.2 to the registrant's Registration Statement on Form S-1, as amended (File No. 333-225213)).</u></a>
99.2	<a href="#"><u>2018 Employee Stock Purchase Plan (Incorporated by reference to Exhibit 10.14 to the registrant's Registration Statement on Form S-1, as amended (File No. 333-225213)).</u></a>

\* Filed herewith.

## 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 the City of Cambridge, Commonwealth of Massachusetts, on the 25th day of March, 2019.

### AVROBIO INC.

By: /s/ Geoff MacKay  
Geoff MacKay  
*President, Chief Executive Officer and  
Principal Executive Officer*

## POWER OF ATTORNEY AND SIGNATURES

KNOW ALL BY THESE PRESENT, that each individual whose signature appears below hereby constitutes and appoints each of Geoff MacKay and Erik Ostrowski as such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for such person in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission granting unto each 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 such person might or could do in person, hereby ratifying and confirming all that any said attorney-in-fact and agent, or any substitute or substitutes of any of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following person in the capacities and on the date indicated.

Name	Title	Date
<u>/s/ Geoff MacKay</u> Geoff MacKay	<i>Director, President, Chief Executive Officer and Principal Executive Officer</i>	March 25, 2019
<u>/s/ Erik Ostrowski</u> Erik Ostrowski	<i>Chief Financial Officer and Principal Financial and Accounting Officer</i>	March 25, 2019
<u>/s/ Bruce Booth</u> Bruce Booth, D.Phil.	<i>Chairman of the Board of Directors</i>	March 25, 2019
<u>/s/ Ian T. Clark</u> Ian T. Clark	<i>Director</i>	March 25, 2019
<u>/s/ Phillip B. Donenberg</u> Phillip B. Donenberg	<i>Director</i>	March 25, 2019
<u>/s/ Annalisa Jenkins</u> Annalisa Jenkins, M.B.B.S., F.R.C.P.	<i>Director</i>	March 25, 2019
<u>/s/ Christopher Paige</u> Christopher Paige, Ph.D.	<i>Director</i>	March 25, 2019
<u>/s/ Philip Vickers</u> Philip Vickers, Ph.D.	<i>Director</i>	March 25, 2019

March 25, 2019

AVROBIO, Inc.  
One Kendall Square  
Building 300, Suite 201  
Cambridge, MA 02139

Re: Securities Being Registered under Registration Statement on Form S-8

Ladies and Gentlemen:

We have acted as counsel to you in connection with your filing of a Registration Statement on Form S-8 (the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), on or about the date hereof relating to an aggregate of 1,190,331 shares (the "Shares") of Common Stock, \$0.0001 par value per share ("Common Stock"), of AVROBIO, Inc., a Delaware corporation (the "Company"), that may be issued pursuant to the Company's 2018 Stock Option and Incentive Plan and 2018 Employee Stock Purchase Plan (collectively, the "Plans").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.

For purposes of the opinion set forth below, we have assumed that no event occurs that causes the number of authorized shares of Common Stock available for issuance by the Company to be less than the number of then unissued Shares.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Plans, will be validly issued, fully paid and nonassessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement. In giving our consent, we do not 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 thereunder.

Very truly yours,

/s/ GOODWIN PROCTER LLP

GOODWIN PROCTER LLP

**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the 2018 Stock Option and Incentive Plan and the 2018 Employee Stock Purchase Plan of AVROBIO, Inc. of our report dated March 25, 2019, with respect to the consolidated financial statements of AVROBIO, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2018, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts  
March 25, 2019