



AVROBIO, INC.
One Kendall Square
Building 300, Suite 201
Cambridge, Massachusetts 02139

NOTICE OF 2022 ANNUAL MEETING OF STOCKHOLDERS
To be held June 8, 2022

Notice is hereby given that the 2022 Annual Meeting of Stockholders, or Annual Meeting, of AVROBIO, Inc. will be held on Wednesday, June 8, 2022 at 9:00 a.m. Eastern Time. To protect the health and safety of our stockholders, employees, directors and community in light of the ongoing COVID-19 pandemic, we will again utilize a virtual format for our Annual Meeting. Stockholders may attend the virtual Annual Meeting by visiting www.proxydocs.com/AVRO. The purpose of the Annual Meeting is the following:

1. to elect three class I directors to our board of directors, to serve until the 2025 annual meeting of stockholders and until his or her successor has been duly elected and qualified, or until his or her earlier death, resignation or removal;
2. to ratify the appointment of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022;
3. to approve an amendment to the AVROBIO, Inc. 2018 Stock Option and Incentive Plan; and
4. to transact any other business properly brought before the Annual Meeting or any adjournment or postponement of the Annual Meeting.

The proposal for the election of directors relates solely to the election of class I directors nominated by the board of directors.

Only AVROBIO, Inc. stockholders of record at the close of business on April 11, 2022 will be entitled to vote during the Annual Meeting and any adjournment or postponement thereof. In order to attend, you must register in advance at www.proxydocs.com/AVRO prior to the deadline of June 6, 2022 at 5:00 p.m. Eastern Time. Upon completing your registration, you will receive further instructions via email, including your unique links that will allow you access to the meeting and will permit you to submit questions. You will not be able to attend the 2022 Annual Meeting in person.

We are pleased to take advantage of Securities and Exchange Commission rules that allow companies to furnish their proxy materials over the Internet. We are mailing to our stockholders a Notice of Internet Availability of Proxy Materials, or Notice, instead of a paper copy of our proxy materials and our 2021 Annual Report to Stockholders, or 2021 Annual Report. The Notice contains instructions on how to access those documents and to cast your vote via the Internet. The Notice also contains instructions on how to request a paper copy of our proxy materials and our 2021 Annual Report. This process allows us to provide our stockholders with necessary information on a more timely basis, while reducing the environmental impact and lowering the costs of printing and distributing our proxy materials.

Your vote is important. Whether or not you are able to attend the virtual Annual Meeting, it is important that your shares be represented. To ensure that your vote is recorded promptly, please vote as soon as possible, even if you plan to attend the virtual Annual Meeting. You may vote by submitting your proxy via the Internet, by telephone, or by mail (if you received paper copies of the proxy materials) by following the instructions on the proxy card or voting instruction card. Voting over the Internet or by telephone, written proxy or voting instruction card will ensure your representation at the virtual Annual Meeting regardless of whether you attend.

By order of the Board of Directors,

A handwritten signature in black ink, appearing to read 'Geoff MacKay'.

Geoff MacKay
President and Chief Executive Officer

Cambridge, Massachusetts
April 27, 2022

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**AVROBIO, INC.
One Kendall Square
Building 300, Suite 201
Cambridge, Massachusetts 02139**

**PROXY STATEMENT
FOR THE 2022 ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD JUNE 8, 2022**

This proxy statement contains information about the 2022 Annual Meeting of Stockholders, or the Annual Meeting, of AVROBIO, Inc., which will be held on Wednesday, June 8, 2022 at 9:00 a.m. Eastern Time. To protect the health and safety of our stockholders, employees, directors and community in light of the ongoing COVID-19 pandemic, the 2022 Annual Meeting will be a virtual stockholders meeting held at www.proxydocs.com/AVRO. The board of directors of AVROBIO, Inc. is using this proxy statement to solicit proxies for use at the Annual Meeting. In this proxy statement, the terms “AVROBIO,” “Company,” “we,” “us,” and “our” refer to AVROBIO, Inc. The mailing address of our principal executive offices is One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139.

All properly submitted proxies will be voted in accordance with the instructions contained in those proxies. If no instructions are specified, the proxies will be voted in accordance with the recommendation of our board of directors with respect to each of the matters set forth in the accompanying Notice of Meeting. You may revoke your proxy at any time before it is exercised at the meeting by giving our proxy tabulator written notice to that effect. Such written notice should be delivered by mail to Proxy Tabulator for AVROBIO, Inc., c/o Mediant Communications, P.O. Box 8016, Cary, NC 27512-9903.

We made this proxy statement and our Annual Report to Stockholders for the fiscal year ended December 31, 2021 available to stockholders on April 27, 2022.

We are an “emerging growth company” under applicable federal securities laws and therefore permitted to conform with certain reduced public company reporting requirements. As an emerging growth company, we provide in this proxy statement the scaled disclosure permitted under the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, including the compensation disclosures required of a “smaller reporting company,” as that term is defined in Rule 12b-2 promulgated under the Securities Exchange Act of 1934, as amended, or the Exchange Act. In addition, as an emerging growth company, we are not required to conduct votes seeking approval, on an advisory basis, of the compensation of our named executive officers or the frequency with which such votes must be conducted. We will remain an “emerging growth company” until the earliest of (i) the last day of the fiscal year following the fifth anniversary of our June 2018 initial public offering; (ii) the last day of the fiscal year in which our total annual gross revenue is equal to or more than \$1.07 billion; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or SEC. Even after we are no longer an “emerging growth company,” we may remain a “smaller reporting company.”

**Important Notice Regarding the Availability of Proxy Materials for
the Annual Meeting of Stockholders to be Held on June 8, 2022:**

**This proxy statement and our 2021 Annual Report to Stockholders are
available for viewing, printing and downloading at www.proxydocs.com/AVRO.**

A copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, as filed with the SEC, except for exhibits, will be furnished without charge to any stockholder upon written request to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary. This proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2021 are also available on the SEC’s website at www.sec.gov, or on our website at <http://investors.avrobio.com/financial-information/sec-filings>.

AVROBIO, INC.
PROXY STATEMENT
FOR THE 2022 ANNUAL MEETING OF STOCKHOLDERS

GENERAL INFORMATION

When are this proxy statement and the accompanying materials scheduled to be sent to stockholders?

We have elected to provide access to our proxy materials to our stockholders via the Internet. Accordingly, on or about April 27, 2022, we will begin mailing a Notice of Internet Availability of Proxy Materials, or Notice. Our proxy materials, including the Notice of 2022 Annual Meeting of Stockholders, this proxy statement and the accompanying proxy card or, for shares held in street name (i.e. held for your account by a broker or other nominee), a voting instruction form, and the 2021 Annual Report to Stockholders, or 2021 Annual Report, will be mailed or made available to stockholders on the Internet on or about the same date.

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

Pursuant to rules adopted by the SEC, for most stockholders, we are providing access to our proxy materials over the Internet rather than printing and mailing our proxy materials. We believe following this process will expedite the receipt of such materials and will help lower our costs and reduce the environmental impact of our annual meeting materials. Therefore, the Notice was mailed to holders of record and beneficial owners of our common stock starting on or about April 27, 2022. The Notice provides instructions as to how stockholders may access and review our proxy materials, including the Notice of 2022 Annual Meeting of Stockholders, this proxy statement, the proxy card and our 2021 Annual Report, on the website referred to in the Notice or, alternatively, how to request that a copy of the proxy materials, including a proxy card, be sent to them by mail. The Notice also provides voting instructions. In addition, stockholders of record may request to receive the proxy materials in printed form by mail or electronically by e-mail on an ongoing basis for future stockholder meetings. Please note that while our proxy materials are available at the website referenced in the Notice, and our Notice of 2022 Annual Meeting of Stockholders, this proxy statement and our 2021 Annual Report are available on our website, no other information contained on either website is incorporated by reference in or considered to be a part of this proxy statement.

Who is soliciting my vote?

Our board of directors is soliciting your vote for the Annual Meeting.

When is the record date for the Annual Meeting?

The record date for determination of stockholders entitled to vote at the Annual Meeting is the close of business on April 11, 2022.

How many votes can be cast by all stockholders?

There were 43,696,470 shares of our common stock, par value \$0.0001 per share, outstanding on April 11, 2022, all of which are entitled to vote with respect to all matters to be acted upon at the Annual Meeting. Each stockholder of record is entitled to one vote for each share of our common stock held by such stockholder. None of our shares of undesignated preferred stock were outstanding as of April 11, 2022.

Where will the Annual Meeting be held this year?

In light of the ongoing COVID-19 pandemic and after careful consideration, the board of directors determined to hold a virtual annual meeting again this year in order to protect the health and safety of our stockholders, employees, directors and community. We are committed to ensuring that stockholders will be afforded the same rights and opportunities to participate as they would at an in-person meeting. In order to attend the virtual Annual Meeting and vote your shares, you must register in advance at www.proxydocs.com/AVRO prior to the deadline of June 6, 2022 at 5:00 p.m. Eastern Time. There will not be an in-person meeting.

How do I vote?

If you are a stockholder of record, there are several ways for you to vote your shares.

- *By Internet or Telephone prior to the Annual Meeting.* You can vote by proxy over the Internet or by telephone by following the instructions provided in the Notice. In order to be counted, proxies submitted by Internet or by telephone must be received by the cutoff time of 11:59 p.m. Eastern Time on June 7, 2022.
- *By Mail prior to the Annual Meeting.* If you requested printed copies of the proxy materials by mail, you can vote by mailing your proxy as described in the proxy materials. Proxies submitted by mail must be received before the start of the Annual Meeting.
- *Online during the Annual Meeting.* You may vote during the virtual Annual Meeting by following the instructions available at www.proxydocs.com/AVRO. If you hold your shares through a bank or broker and wish to vote at the virtual Annual Meeting, you must obtain a valid proxy from the firm that holds your shares. In order to attend the virtual Annual Meeting and vote your shares, you must register in advance at www.proxydocs.com/AVRO prior to the deadline of June 6, 2022 at 5:00 p.m. Eastern Time.

If you complete and submit your proxy before the Annual Meeting, the persons named as proxies will vote the shares represented by your proxy in accordance with your instructions. If you submit a proxy without giving voting instructions, your shares will be voted in the manner recommended by the board of directors on all matters presented in this proxy statement, and as the persons named as proxies may determine in their discretion with respect to any other matters properly presented at the Annual Meeting. You may also authorize another person or persons to act for you as proxy in a writing, signed by you or your authorized representative, specifying the details of those proxies' authority. The original writing must be given to each of the named proxies, although it may be sent to them by electronic transmission if, from that transmission, it can be determined that the transmission was authorized by you.

If any other matters are properly presented for consideration at the Annual Meeting, including, among other things, consideration of a motion to adjourn the Annual Meeting to another time or place (including, without limitation, for the purpose of soliciting additional proxies), the persons named in your proxy and acting thereunder will have discretion to vote on those matters in accordance with their best judgment. We do not currently anticipate that any other matters will be raised at the Annual Meeting.

How can I submit a question for the Annual Meeting?

Stockholders of record will have the opportunity to submit questions in advance of the meeting. To attend the Annual Meeting, you must register in advance at www.proxydocs.com/AVRO prior to the deadline of June 6, 2022 at 5:00 p.m. Eastern Time. Upon completing your registration, you will receive further instructions via email, including your unique links that will allow you access to the meeting and will permit you to submit questions in advance of the meeting. All questions presented should relate directly to the agenda item under discussion. We reserve the right to exclude questions regarding topics that are not pertinent to meeting matters or company business in the chairperson's sole and absolute discretion. If we receive substantially similar questions, we may group such questions together and provide a single response to avoid repetition.

How do I revoke my proxy?

You may revoke your proxy by (1) following the instructions on the Notice and entering a new vote by mail that we receive before the start of the Annual Meeting or over the Internet by the cutoff time of 11:59 p.m. Eastern Time on June 7, 2022, (2) attending and voting at the virtual Annual Meeting (although attendance at the virtual Annual Meeting will not in and of itself revoke a proxy), or (3) by filing an instrument in writing revoking the proxy or another duly executed proxy bearing a later date with our Corporate Secretary. Any written notice of revocation or subsequent proxy card must be received by our proxy tabulator prior to the taking of the vote at the Annual Meeting. Such written notice of revocation or subsequent proxy card should be delivered by mail to Proxy Tabulator for AVROBIO, Inc., c/o Mediant Communications, P.O. Box 8016, Cary, NC 27512-9903.

If a broker, bank, or other nominee holds your shares, you must contact such broker, bank, or nominee in order to find out how to change your vote.

How is a quorum reached?

Our Amended and Restated By-laws, or bylaws, provide that a majority of the shares entitled to vote, present in person or represented by proxy, will constitute a quorum for the transaction of business at the Annual Meeting.

Under the General Corporation Law of the State of Delaware, shares that are voted “abstain” or “withheld” and broker “non-votes” are counted as present for purposes of determining whether a quorum is present at the Annual Meeting. If a quorum is not present, the meeting may be adjourned until a quorum is obtained.

How is the vote counted?

Under our bylaws, any proposal other than an election of directors is decided by a majority of the votes properly cast for and against such proposal, except where a larger vote is required by law or by our Amended and Restated Certificate of Incorporation, or certificate of incorporation, or bylaws. Abstentions and broker “non-votes” are not included in the tabulation of the voting results on any such proposal and, therefore, do not have an impact on such proposals. A broker “non-vote” occurs when a nominee holding shares for a beneficial owner does not vote on a particular proposal because the nominee does not have discretionary voting power with respect to that item, and has not received instructions from the beneficial owner.

If your shares are held in “street name” by a brokerage firm, your brokerage firm is required to vote your shares according to your instructions. If you do not give instructions to your brokerage firm, the brokerage firm will still be able to vote your shares with respect to certain “discretionary” items, but will not be allowed to vote your shares with respect to “non-discretionary” items. Proposal Nos. 1 and 3 are “non-discretionary” items. If you do not instruct your broker how to vote with respect to these proposals, your broker may not vote for such proposals, and those votes will be counted as broker “non-votes.” Proposal No. 2 is considered to be a discretionary item, and your brokerage firm will be able to vote on this proposal even if it does not receive instructions from you.

To be elected, the directors nominated via Proposal No. 1 must receive a plurality of the votes cast and entitled to vote on the proposal, meaning that the director nominees receiving the most votes will be elected. Shares voting “withheld” have no effect on the election of directors.

Who pays the cost for soliciting proxies?

We are making this solicitation and will pay the entire cost of preparing and distributing the Notice and our proxy materials and soliciting votes. If you choose to access the proxy materials or vote over the Internet, you are responsible for any Internet access charges that you may incur. Our officers and employees may, without compensation other than their regular compensation, solicit proxies through further mailings, personal conversations, facsimile transmissions, e-mails, or otherwise. We have hired Donnelley Financial Solutions to assist us in the distribution of proxy materials. Proxy solicitation expenses that we will pay include those for preparation, mailing, returning, and tabulating the proxies. In addition, we have engaged Innisfree M&A Incorporated to assist us with our stockholder engagement process and the solicitation of proxies, and we may pay them up to \$30,000 for their services for the Annual Meeting.

How may stockholders submit matters for consideration at an annual meeting?

The required notice must be in writing and received by our Corporate Secretary at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year’s annual meeting. However, in the event that the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from the first anniversary of the preceding year’s annual meeting, or if no annual meeting were held in the preceding year, a stockholder’s notice must be so received no earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the tenth day following the day on which public announcement of the date of such meeting is first made. For stockholder proposals to be brought before the 2023 Annual Meeting of Stockholders, the required notice must be received by our Corporate Secretary at our principal executive offices no earlier than February 8, 2023 and no later than March 10, 2023. Stockholder proposals and the required notice should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary

In addition, any stockholder proposal intended to be included in the proxy statement for the next annual meeting of our stockholders in 2023 must also satisfy the requirements of SEC Rule 14a-8 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and be received not later than December 28, 2022. If the date of the 2023 Annual Meeting is moved by more than 30 days from the date contemplated at the time of the previous year’s proxy statement, then notice must

be received within a reasonable time before we begin to print and send proxy materials. If that happens, we will publicly announce the deadline for submitting a proposal in a press release or in a document filed with the SEC.

To comply with the universal proxy rules (once effective), stockholders who intend to solicit proxies in support of director nominees other than the Company's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than April 7, 2023. Stockholder proposals and the required notice should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

How can I know the voting results?

We plan to announce preliminary voting results at the Annual Meeting and will publish final results in a Current Report on Form 8-K to be filed with the SEC within four business days following the Annual Meeting.

PROPOSAL NO. 1 – ELECTION OF CLASS I DIRECTORS

Our board of directors currently consists of eight members. In accordance with the terms of our certificate of incorporation and bylaws, our board of directors is divided into three classes, class I, class II and class III, with members of each class serving staggered three-year terms. The members of the classes are divided as follows:

- the class I directors are Gail Farfel, Ph.D., Christopher Paige, Ph.D. and Philip Vickers, Ph.D., and their terms will expire at the Annual Meeting;
- the class II directors are Ian Clark and Annalisa Jenkins, M.B.B.S., F.R.C.P., and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the class III directors are Bruce Booth, D.Phil., Phillip Donenberg and Geoff MacKay, and their terms will expire at the annual meeting of stockholders to be held in 2024.

Upon the expiration of the term of a class of directors, directors in that class will be eligible to be elected for a new three-year term at the annual meeting of stockholders in the year in which their term expires.

Our certificate of incorporation and bylaws provide that the authorized number of directors may be changed only by resolution of our board of directors. Our certificate of incorporation also provides that our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds (2/3) of the outstanding shares then entitled to vote in an annual election of directors, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

Our board of directors has nominated Gail Farfel, Ph.D., Christopher Paige, Ph.D. and Philip Vickers, Ph.D. for election as the class I directors at the Annual Meeting. The nominees are presently directors and have indicated a willingness to continue to serve as directors, if elected. If the nominees become unable or unwilling to serve, however, the proxies may be voted for a substitute nominee selected by our board of directors.

Our board of directors believes that a diversity of experience and other characteristics, such as gender, race, ethnicity, culture, nationality and sexual orientation, are an important part of its makeup. Accordingly, in 2021 the board of directors amended our Corporate Governance Guidelines to provide that when identifying prospective director candidates, the Nominating and Corporate Governance Committee may: (i) consider candidates with diverse backgrounds in terms of knowledge, experience, skills and other characteristics in the context of the needs of the Company at that point in time with a view to creating a board with a diversity of experience and perspectives; and (ii) include in the pool from which director candidates are identified candidates with a diversity of gender, race, ethnicity, culture, nationality or sexual orientation (and any third party engaged to identify candidates for such pool may be asked to include such candidates). Our priority in selection of board members is identification of members who will further the interests of our stockholders through consideration of a number of facts and circumstances, including, among other things, the skills of the prospective director candidate, his or her depth and breadth of business experience or other background characteristics, his or her independence and the needs of the board of directors.

The recently adopted Nasdaq Stock Market LLC, or Nasdaq, listing requirements require each listed company to have, or explain why it does not have, at least two Diverse (as defined in Nasdaq Rule 5605(f)) directors on the board, including at least one Diverse director who self-identifies as female and one Diverse director who self-identifies as part of an underrepresented minority or LGBTQ+. However, smaller reporting companies, such as AVROBIO, may satisfy this requirement by having two female directors. The current composition of our board of directors is in compliance with the Nasdaq diversity requirement. The table below provides certain highlights of the composition of our board members and nominees based on their voluntary self-identified demographic characteristics. The categories “Female,” “LGBTQ+,” and “Two or More Races or Ethnicities” as used in the below table have the definitions as provided in Nasdaq Rule 5605(f).

Board Diversity Matrix (As of April 27, 2022)				
Board Size:				
8 Directors				
Gender:	Male	Female	Non-Binary	Gender Undisclosed
Number of directors based on gender identity	6	2	-	-
Number of directors who identify in any of the categories below:				
African American or Black	-	-	-	-
Alaskan Native or American Indian	-	-	-	-
Asian	-	-	-	-
Hispanic or Latinx	-	-	-	-
Native Hawaiian or Pacific Islander	-	-	-	-
White	6	2	-	-
Two or More Races or Ethnicities	-	-	-	-
LGBTQ+	-	-	-	-
Undisclosed	-	-	-	-

Nominees for Election as Class I Directors

The following table and narrative information identifies our nominees for class I directors, and sets forth their principal occupation and business experience during the last five years and their ages as of April 11, 2022.

Name	Positions and Offices Held with AVROBIO	Director	
		Since	Age
Gail Farfel, Ph.D.	Director	2020	58
Christopher Paige, Ph.D.	Director	2016	69
Philip J. Vickers, Ph.D.	Director	2019	62

Gail M. Farfel, Ph.D. has served as a member of our board of directors since October 2020. Dr. Farfel is the executive vice president and chief development officer of Zogenix Inc. (Nasdaq: ZGNX), a biopharmaceutical company, and has served in such role since June 2015. Previously, Dr. Farfel was chief clinical and regulatory officer of Marinus Pharmaceuticals, establishing and overseeing clinical, medical and regulatory strategies for adult and pediatric seizure disorders, including a pediatric epileptic orphan disease. Prior to that, she was vice president, therapeutic area head for neuroscience clinical development and medical affairs at Novartis Pharmaceuticals Corporation, where she oversaw a portfolio of products for multiple sclerosis, Alzheimer’s disease and Parkinson’s disease. Dr. Farfel serves on the board of directors of Zogenix International Ltd., a wholly owned subsidiary of Zogenix, Inc., and Durect Corporation (Nasdaq: DRRX). Dr. Farfel holds a Ph.D. in neuropsychopharmacology from the University of Chicago, where she received the Ginsburg Prize for Dissertation Excellence and is a director on the Medical and Biological Sciences Alumni Board. She also holds a B.S. in biochemistry from the University of Virginia. We believe that Dr. Farfel is qualified to serve on our board of directors because of her scientific, executive, and industry experience in the field in which we operate.

Christopher Paige, Ph.D. has served as a member of our board of directors since January 2016. Dr. Paige is a professor in the departments of medical biophysics and immunology at the University of Toronto and has served in that role since 1987. He also holds the position of Emeritus Senior Scientist at University Health Network (UHN) after having served as a senior scientist at UHN from 1987 to 2021. From 1997 to October 2016, he served as the vice president, research of the University Health Network. In 1990, Dr. Paige became the founding director of the Arthritis and Autoimmunity Research Centre as well as director of research at The Wellesley Hospital. He became a member of the Basel Institute for Immunology in Switzerland in 1980 where he worked until joining the Ontario Cancer Institute as a senior scientist in 1987. Dr. Paige also has experience serving on the board of directors of privately held companies. Dr. Paige earned a B.S. in biology at the University of Notre Dame in 1974 and a Ph.D. in immunology at the Sloan-Kettering Division of Cornell University Graduate School of Medical Sciences in 1979. We believe Dr. Paige is qualified to serve on our board of directors because of his scientific and industry experience in the field in which we operate.

Philip J. Vickers, Ph.D. has served as a member of our board of directors since January 2019. Dr. Vickers is the chief executive officer of Faze Medicines, a biotechnology company, and has served in such role since January 2021. From November 2017 until December 2020, Dr. Vickers served as the president and chief executive officer and a member of the

board of directors of Northern Biologics Inc., a biotechnology company. From June 2013 until June 2017, Dr. Vickers served as global head of research and development and a member of the executive committee of Shire plc, a biotechnology company focused on the development of therapies for the treatment of rare and specialty conditions. From October 2010 to September 2013, Dr. Vickers served as the senior vice president, head of research and development, human genetic therapies at Shire. Prior to Shire, Dr. Vickers held positions of increasing responsibility in research and development at Merck & Co., Inc., Pfizer Inc., Boehringer-Ingelheim International GmbH and Resolvix Pharmaceuticals, Inc. Dr. Vickers serves on the board of directors of Revance Therapeutics, Inc. (Nasdaq: RVNC), a biotechnology company, and as a scientific advisor to the PTEN Research Foundation. Dr. Vickers obtained his Ph.D. in biochemistry from the University of Toronto, which was followed by postdoctoral research in mechanisms of multidrug resistance in breast cancer at the National Cancer Institute in Bethesda, Maryland. We believe that Dr. Vickers is qualified to serve on our board of directors because of his scientific, executive, and industry experience in the field in which we operate.

The proxies will be voted in favor of the above nominees unless a contrary specification is made in the proxy. The nominees have consented to serve as our directors if elected. However, if the nominees are unable to serve or for good cause will not serve as a director, the proxies will be voted for the election of such substitute nominee as our board of directors may designate.

The board of directors recommends voting “FOR” the election of Gail Farfel, Christopher Paige and Philip Vickers as the class I directors, to serve for a three-year term ending at the annual meeting of stockholders to be held in 2025.

Directors Continuing in Office

The following table and narrative information identifies our directors continuing in office, and sets forth their principal occupation and business experience during the last five years and their ages as of April 11, 2022.

<u>Name</u>	<u>Positions and Offices Held with AVROBIO</u>	<u>Director Since</u>	<u>Class and Year in Which Term Will Expire</u>	<u>Age</u>
Ian Clark	Director	2018	Class II—2023	61
Annalisa Jenkins, M.B.B.S., F.R.C.P.	Director	2018	Class II—2023	56
Bruce Booth, D.Phil.	Director	2016	Class III—2024	47
Phillip B. Donenberg	Director	2018	Class III—2024	61
Geoff MacKay	Director	2015	Class III—2024	55

Class II Directors (Term Expires at 2023 Annual Meeting)

Ian Clark has served as a member of our board of directors since January 2018. From 2010 to 2016, Mr. Clark served as the chief executive officer and head of North American commercial operations and was a member of the board of directors for Genentech, a member of the Roche Group. He joined Genentech in 2003 as senior vice president and general manager, BioOncology. In August 2005, he became senior vice president, commercial operations of Genentech. In January 2006, Mr. Clark became executive vice president, commercial operations of Genentech and became a member of its executive committee. Mr. Clark was named head of global product strategy and chief marketing officer of Roche in April 2009. Prior to joining Genentech, Mr. Clark held various positions of increasing responsibility at Novartis, Sanofi, Ivax and Searle, working in the USA, UK, Canada, Eastern Europe and France. Mr. Clark currently serves on the board of directors of Corvus Pharmaceuticals, Inc. (Nasdaq: CRVS), Takeda Pharmaceutical Company Limited (NYSE: TAK), Olema Pharmaceuticals, Inc. (Nasdaq: OLMA), where he serves as chairman, and Guardant Health, Inc. (Nasdaq: GH), where he also serves as the lead independent director. Additionally, Mr. Clark currently serves on the board of directors of Agios Pharmaceuticals, Inc. (Nasdaq: AGIO), but is expected to resign from that position following the Agios 2022 annual meeting of stockholders. Mr. Clark also serves on the strategic priorities board of BioFulcrum, an initiative within the Gladstone Institutes, and serves as an advisor to Lazard and KKR. Mr. Clark previously served on the board of directors of Forty Seven, Inc., Shire plc, Kite Pharma, and TerraVia (formerly Solazyme). He also previously served on the board of directors of the Biotechnology Industry Organization (BIO), as a member of the economic advisory council of the Federal Reserve Bank of San Francisco, and as an operating partner of Blackstone Life Sciences, a private investment firm focusing on the life sciences sector and an operating unit within The Blackstone Group L.P. Mr. Clark received a B.S. and honorary doctorate in biological sciences from Southampton University in the United Kingdom. We believe Mr. Clark is qualified to serve on our board of directors because of his industry experience in the field in which we operate and his executive experience with companies in our industry.

Annalisa Jenkins, M.B.B.S., F.R.C.P. has served as a member of our board of directors since March 2018. From November 2017 until April 2019, Dr. Jenkins served as the chief executive officer of PlaqueTec Ltd., a biotechnology company focusing on coronary artery disease treatment and prevention. Previously, Dr. Jenkins served as the president and chief executive officer and a member of the board of directors of Dimension Therapeutics, Inc., a biotechnology company focused on rare and metabolic diseases associated with the liver, from September 2014 until its sale to Ultragenyx Pharmaceutical Inc. in November 2017. From October 2013 to March 2014, Dr. Jenkins served as executive vice president, head of global research and development for Merck Serono Pharmaceuticals, a biopharmaceutical company. Previously, from September 2011 to October 2013, she served as Merck Serono's executive vice president, global development and medical, and was a member of Merck Serono's executive committee. Prior to that, Dr. Jenkins pursued a 15-year career at Bristol-Myers Squibb Company, a biopharmaceutical company, where, from July 2009 to June 2011, she was a senior vice president and head of global medical affairs. Dr. Jenkins is currently a committee member of the science board to the FDA, which advises FDA leadership on complex scientific and technical issues, and serves on the board of Genomics England, a UK government entity dedicated to advancing the 100,000 Genomes Project. Dr. Jenkins serves on the board of directors of Oncimmune Holdings plc (LSE: ONC), Affimed N.V. (Nasdaq: AFMD), Compass Pathways (Nasdaq: CMPS) and a number of privately held biotechnology and life science companies. Dr. Jenkins also previously served on the board of numerous biotechnology and life science companies, including AgeX Therapeutics, Inc. (NYSE American: AGE), Silence Therapeutics, Ardelyx, Inc., OncoSec Medical Incorporated, and Sensyne Health plc. Dr. Jenkins graduated with a degree in medicine from St. Bartholomew's Hospital in the University of London and subsequently trained in cardiovascular medicine in the UK National Health Service. Earlier in her career, Dr. Jenkins served as a medical officer in the British Royal Navy. We believe Dr. Jenkins is qualified to serve on our board of directors based on her industry experience in the field in which we operate and her executive experience with companies in our industry.

Class III Directors (Term Expires at 2024 Annual Meeting)

Bruce Booth, D.Phil. has served as the chairperson of our board of directors since February 2016. Dr. Booth joined Atlas Venture in 2005, and currently serves as general partner. Previously, from 2004 to 2005, Dr. Booth was a principal at Caxton Health Holdings L.L.C., a healthcare-focused investment firm, where he focused on the firm's venture capital activities. Prior to Caxton, from 1999 to 2004, he was an associate principal at McKinsey & Company, a global strategic management consulting firm, where he advised clients on R&D productivity, corporate strategy and business development issues across the biopharmaceutical sector. Dr. Booth is chairman and co-founder of Kymera Therapeutics, Inc. (Nasdaq: KYMR) and serves on the board of Magenta Therapeutics, Inc. (Nasdaq: MGTA), both of which are biotechnology companies. He also serves on the board of several privately held companies. From February 2018 until July 2020, Dr. Booth served as chairperson of the board of directors of Unum Therapeutics Inc., now called Cogent Biosciences (Nasdaq: COGT); from February 2017 until December 2018, Dr. Booth served as independent chairperson of the board of directors of miRagen Therapeutics, Inc., now called Viridian Therapeutics, Inc. (Nasdaq: VRDN); and from August 2006 until June 2018, Dr. Booth served on the board of directors of Zafgen, Inc., now called Larimar Therapeutics, Inc. (Nasdaq: LRMR). As a British Marshall Scholar, Dr. Booth holds a D.Phil. in molecular immunology from Oxford University's Nuffield Department of Medicine and a B.S. in biochemistry, *summa cum laude*, from Pennsylvania State University. We believe Dr. Booth's extensive leadership, executive, managerial and business experience with life sciences companies, including experience in the formation, development and business strategy of multiple start-up companies in the life sciences sector, qualifies him to serve on our board of directors.

Phillip B. Donenberg has served as a member of our board of directors and audit committee chair since June 2018. Mr. Donenberg is senior vice president and chief financial officer of Jaguar Gene Therapy, LLC, a privately held early-stage gene therapy company, and has served in such role since February 2020. From July 2018 to November 2018, Mr. Donenberg served as the chief financial officer and senior vice president of Assertio Therapeutics, Inc. (Nasdaq: ASRT), a pharmaceutical company. Previously, Mr. Donenberg served at AveXis, Inc. (now a Novartis company), a gene therapy company, as senior vice president and chief financial officer from October 2017 to June 2018 and as vice president, corporate controller from September 2016 to October 2017. He was the chief financial officer of RestorGenex Corporation from May 2014 to January 2016, when RestorGenex merged with Diffusion Pharmaceuticals LLC, a pharmaceutical company, and served as the merged company's consultant chief financial officer until September 2016, and the chief financial officer of 7wire Ventures LLC, an early-stage healthcare venture fund, from September 2013 to May 2014. Prior to that time, Mr. Donenberg served as the chief financial officer of BioSante Pharmaceuticals, Inc. from July 1998 to June 2013, when BioSante merged with ANIP Pharmaceuticals, Inc. Mr. Donenberg currently serves on the board of directors and as audit committee chair of Taysha Gene Therapies, Inc. (Nasdaq: TSHA), a gene therapy company, and also has experience serving on the boards of directors of privately held companies. Mr. Donenberg holds a B.S. in accountancy from the University of Illinois Champaign-Urbana College of Business and is a Certified Public Accountant. We believe Mr. Donenberg is qualified to serve on our board of directors because of his financial expertise and his experience as an executive of companies in the industry in which we operate.

Geoff MacKay is our co-founder and has been our Chief Executive Officer, President and director since November 2015. From April 2015 to June 2017, Mr. MacKay served as interim chief executive officer of eGenesis, Inc., a biotechnology company, and from December 2003 to December 2014, he served as chief executive officer of Organogenesis Inc., a biotechnology company. Prior to that, from February 1993 to December 2003, Mr. MacKay served in various senior leadership positions within the global transplantation & immunology franchise at Novartis Canada, Global (Basel), and USA. Mr. MacKay has served as chairperson of the board of directors of Satellos Bioscience Inc. (TSXV: MSCL), a regenerative medicine company, since September 2018, and has served on the board of directors of Talaris Therapeutics, Inc. (Nasdaq: TALS), a cell therapy company, since December 2018. Mr. MacKay previously served on the board of RepliCel Life Sciences Inc., Gemstone Biotherapeutics LLC and Centre for Commercialization of Regenerative Medicine, as chairperson of the board of MassBio, chairperson of the board of the Alliance of Regenerative Medicine, and on the advisory council to the Health Policy Commission for Massachusetts. Mr. MacKay holds a B.A. in psychology and a graduate certificate in marketing management from McGill University. We believe Mr. MacKay is qualified to serve on our board of directors because of his executive experience in our industry.

There are no family relationships between or among any of our directors or executive officers. The principal occupation and employment during the past five years of each of our directors was carried on, in each case except as specifically identified above, with a corporation or organization that is not a parent, subsidiary or other affiliate of us. There is no arrangement or understanding between any of our directors and any other person or persons pursuant to which he or she is to be selected as a director.

There are no material legal proceedings to which any of our directors is a party adverse to us or any of our subsidiaries or in which any such person has a material interest adverse to us or our subsidiaries.

Executive Officers Who Are Not Directors

The following table identifies our current executive officers who are not directors, and sets forth their current positions at AVROBIO and their ages as of April 11, 2022.

Name	Position Held with AVROBIO	Officer	
		Since	Age
Steven Avruch	Chief Legal Officer and Secretary	2019	61
Christopher Mason, M.D., Ph.D., FRCS, FMedSci	Chief Scientific Officer	2021	64
Erik Ostrowski	Chief Financial Officer and Treasurer	2019	49
Deanna Petersen	Chief Business Officer	2020	60
Essra Ridha, M.D., MRCP, FFPM	Chief Medical Officer	2021	39

Steven Avruch has been our Chief Legal Officer and Secretary since March 2020 and previously served as our Vice President, General Counsel and Secretary from January 2019 to March 2020. Prior to joining our Company, from May 2018 to December 2018, Mr. Avruch was an independent legal consultant to biotechnology and other companies. Prior to that, Mr. Avruch served at Biogen Inc., a biotechnology company, as chief corporation counsel and assistant secretary from January 2015 to December 2017, and as associate general counsel from March 2013 to December 2014. Mr. Avruch graduated with an A.B. in Russian Studies from Dartmouth College, and later earned his J.D. from Boston College Law School.

Christopher Mason is our co-founder and has been our Chief Scientific Officer since July 2015. Dr. Mason has been a member of the faculty of the Advanced Centre for Biochemical Engineering, University College London since 1999, including Full Professor of Regenerative Medicine Bioprocessing from 2008 to 2017, and Full Professor of Cell and Gene Therapy since 2017. Dr. Mason also has served as Founder and director of London Regenerative Medicine Network Ltd. since February 2008, and as a director of OriBiotech Ltd. since September 2015, Krystal Biotech, Inc. (Nasdaq: KRY5) since January 2021, and the Alliance for Regenerative Medicine since October 2021. He previously served as Founder and a director of Stem Cell Translation Ltd. from October 2006 to March 2018 and served as a trustee of the British Neurological Research Trust from May 2012 to May 2016 and the UK Stem Cell Foundation from September 2010 to May 2016. Dr. Mason earned an M.B.B.S (M.D.) from the United Medical and Dental Schools of Guy's and St. Thomas's Hospitals (now King's College London), a BSc (Hons) in Clinical Sciences from the Imperial College London (St. Mary's Hospital Medical School / Royal Postgraduate Medical School), and a Ph.D. from Advanced Center for Biochemical Engineering, University College London. He is an elected Fellow of the Academy of Medical Sciences, Royal College of Surgeons of England, Royal College of Surgeons in Ireland, and Royal Society of Biology.

Erik Ostrowski has been our Chief Financial Officer and Treasurer since January 2019. From June 2014 to December 2018, Mr. Ostrowski served as the chief financial officer of Summit Therapeutics plc., a biotechnology company. Prior to that, he served as vice president of finance at Organogenesis Inc., a biotechnology company, from July 2010 to June 2014, and previously worked in investment banking, most recently as a director with Leerink Partners LLC. Mr. Ostrowski began his career as an accountant with Coopers & Lybrand (now PricewaterhouseCoopers). Mr. Ostrowski has served on the board of directors of Faron Pharmaceuticals Ltd (LON: FARN) since April 2022. He received a B.S. in accounting and economics from Babson College and a M.B.A. from the University of Chicago Booth School of Business.

Deanna Petersen has been our Chief Business Officer since January 2016. Prior to joining our Company, from June 2009 to June 2015, Ms. Petersen was vice president business of development rare diseases at Shire plc. Prior to that, Ms. Petersen served as vice president of business development at Agenus Inc. from April 2002 to March 2009 and vice president of business development at Coley Pharmaceutical Group. Ms. Petersen received a B.S. degree in biology from Iowa State University and a M.B.A. from the University of Iowa.

Essra Ridha has been our Chief Medical Officer since October 2021, and from April 2021 to July 2021, she was our Vice President, Clinical Development. Prior to joining our Company, from June 2019 to February 2021, Dr. Ridha was Senior Medical Director at Sangamo Therapeutics, a biotechnology company, and before that, from March 2016 to December 2018, she served as Clinical Development Director at GlaxoSmithKline, a pharmaceutical company. From June 2014 to March 2016 Dr. Ridha worked as a medical expert at Bristol Myers Squibb Pharmaceuticals advising on late-stage clinical development, medical affairs, real-world evidence and health economics and outcomes research in cardiovascular medicine. Dr. Ridha is a member of the Royal College of Physicians of London, as well as a Fellow of the Faculty of Pharmaceutical Medicine. She was an expert panel member at the World Health Organization Expert Advisory Committee to develop Global Standards for the Governance and Oversight of Human Genome Editing. She earned her medical degrees from the Royal Free & University College London Medical School and earned her Bachelor of Science Neuroscience with Basic Medical Sciences, with honors, from University College London.

The principal occupation and employment during the past five years of each of our executive officers was carried on, in each case except as specifically identified above, with a corporation or organization that is not a parent, subsidiary or other affiliate of us. There is no arrangement or understanding between any of our executive officers and any other person or persons pursuant to which he was or is to be selected as an executive officer.

There are no material legal proceedings to which any of our executive officers is a party adverse to us or our subsidiaries or in which any such person has a material interest adverse to us or our subsidiaries.

**PROPOSAL NO. 2 – RATIFICATION OF THE APPOINTMENT OF ERNST & YOUNG LLP
AS AVROBIO’S INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE
FISCAL YEAR ENDING DECEMBER 31, 2022**

AVROBIO’s stockholders are being asked to ratify the appointment by the Audit Committee of the board of directors of Ernst & Young LLP as AVROBIO’s independent registered public accounting firm for the fiscal year ending December 31, 2022. Ernst & Young LLP has served as AVROBIO’s independent registered public accounting firm since 2018.

The Audit Committee is solely responsible for selecting AVROBIO’s independent registered public accounting firm for the fiscal year ending December 31, 2022. Stockholder approval is not required to appoint Ernst & Young LLP as AVROBIO’s independent registered public accounting firm. However, the board of directors believes that submitting the appointment of Ernst & Young LLP to the stockholders for ratification is good corporate governance. If the stockholders do not ratify this appointment, the Audit Committee will reconsider whether to retain Ernst & Young LLP. If the selection of Ernst & Young LLP is ratified, the Audit Committee, at its discretion, may direct the appointment of a different independent registered public accounting firm at any time it decides that such a change would be in the best interest of AVROBIO and its stockholders.

A representative of Ernst & Young LLP is expected to be present at the virtual Annual Meeting and will have an opportunity to make a statement if he or she desires to do so and to respond to appropriate questions from our stockholders.

The following table sets forth all fees paid or accrued by us for professional audit services and other services rendered by Ernst & Young LLP during the years ended December 31, 2021 and December 31, 2020.

	2021	2020
Audit fees ⁽¹⁾	\$ 553,000	\$ 648,736
Audit-related fees	—	—
Tax fees ⁽²⁾	69,341	48,825
All other fees ⁽³⁾	3,600	3,505
Total fees	\$ 625,941	\$ 701,066

- (1) Audit fees consist of fees for professional services provided by Ernst & Young LLP for the audit of our annual financial statements, the review of interim consolidated financial statements and consultations on accounting matters directly related to the audit, and comfort letters, consents and assistance with and review of documents filed with the SEC.
- (2) Tax fees consist of fees for professional services in connection with tax compliance, tax planning, and tax advice, including the review and preparation of our federal, state and foreign income tax returns and requests for rulings or technical advice from tax authorities.
- (3) Other fees consist of aggregate fees billed for products and services provided by Ernst & Young LLP other than those fees disclosed above. For the years ended December 31, 2021 and 2020, the other fees relate to our Ernst & Young research website membership.

Audit Committee Pre-approval Policy and Procedures

Our Audit Committee has adopted policies and procedures relating to the approval of all audit and non-audit services that are to be performed by our independent registered public accounting firm. This policy provides that we will not engage our independent registered public accounting firm to render audit or non-audit services unless the service is specifically approved in advance by our Audit Committee or the engagement is entered into pursuant to the pre-approval procedure described below.

From time to time, our Audit Committee may pre-approve specified types of services that are expected to be provided to us by our independent registered public accounting firm during the next 12 months. The Audit Committee has delegated authority to the Chair of the Audit Committee to pre-approve services up to a designated amount. A summary of any new services pre-approved by the Chair is reported to the full Audit Committee in connection with its next scheduled meeting.

During our 2021 and 2020 fiscal years, no services were provided to us by Ernst & Young LLP other than in accordance with the pre-approval policies and procedures described above.

The Audit Committee meets with representatives of Ernst & Young LLP periodically, but no less than quarterly throughout the year. The Audit Committee reviews audit, non-audit and tax services rendered by and the performance of Ernst & Young LLP, as well as fees charged by Ernst & Young LLP for such services. In engaging Ernst & Young LLP for the services described above, the Audit Committee considered whether the provision of such services is compatible with maintaining Ernst & Young LLP's independence.

The board of directors recommends voting "FOR" Proposal No. 2 to ratify the appointment of Ernst & Young LLP as AVROBIO's independent registered public accounting firm for the fiscal year ending December 31, 2022.

PROPOSAL NO. 3 – APPROVAL OF AN AMENDMENT TO THE AVROBIO, INC. 2018 STOCK OPTION AND INCENTIVE PLAN

The board of directors believes that stock-based incentive awards can play an important role in the success of the Company by encouraging and enabling the employees, officers, non-employee directors and consultants of the Company and its subsidiaries upon whose judgment, initiative and efforts we largely depend for the successful conduct of our business to acquire a proprietary interest in the Company. The board of directors believes that providing such persons with a direct stake in the Company assures a closer identification of the interests of such individuals with those of the Company and its stockholders, thereby stimulating their efforts on the Company’s behalf and strengthening their desire to remain with the Company.

On June 1, 2018, the board of directors adopted the AVROBIO, Inc. 2018 Stock Option and Incentive Plan (the “2018 Plan”). The 2018 Plan was subsequently approved by our stockholders on June 7, 2018 and became effective on June 20, 2018 upon the effectiveness of our registration statement for our initial public offering. The 2018 Plan is designed to enhance the flexibility to grant equity awards to our officers, employees, non-employee directors and consultants and to ensure that we can continue to grant equity awards to eligible recipients at levels determined to be appropriate by the board of directors and/or the Compensation Committee. On April 16, 2020, upon recommendation of the Compensation Committee, the board of directors approved an amendment to the 2018 Plan (the “First Amendment”) to increase the number of shares of common stock reserved for issuance thereunder by 3.3 million shares and automatically terminate the 2018 Plan’s annual increase (or “evergreen”) provision after January 2022. The First Amendment was subsequently approved by our stockholders on June 4, 2020. A copy of the 2018 Plan and the First Amendment are attached as Appendix A and B, respectively, to this proxy statement and are incorporated herein by reference.

On March 2, 2022, upon the recommendation of the Compensation Committee and subject to stockholder approval, the board of directors approved a second amendment to the 2018 Plan (the “Second Amendment”) to (i) increase the number of shares of common stock currently reserved for issuance under the 2018 Plan by 3.7 million shares, (ii) impose a one-year minimum vesting requirement on stock awards issued under the 2018 Plan, subject to certain exceptions described more fully below and (iii) extend the expiration date of the 2018 Plan to ten years from the date of stockholder approval of the Second Amendment. As of March 31, 2022, only 1,777,657 shares remained available for future issuance under the 2018 Plan. If the Second Amendment is approved by our stockholders, the number of shares of common stock reserved for issuance under the 2018 Plan would be increased by 3.7 million shares (for a total of 5,477,657 shares that would be available for future grants as of March 31, 2022 had the increase been in place on such date). A copy of the Second Amendment is attached as Appendix C to this proxy statement and is incorporated herein by reference.

We currently maintain four equity incentive plans: the Amended and Restated 2015 Stock Option and Grant Plan (the “2015 Plan”); the 2018 Plan; the 2019 Inducement Plan; and the 2020 Inducement Plan (such inducement plans collectively referred to as the “Inducement Plans”). As of March 31, 2022, there were options to acquire an aggregate of 9,297,605 shares of common stock outstanding under our 2015 Plan, 2018 Plan and Inducement Plans, with a weighted average exercise price of \$9.59 and a weighted average remaining term of 8.02 years. In addition, as of March 31, 2022, there were 919,853 unvested full value awards with time-based vesting outstanding under our equity incentive plans. Other than the foregoing, no awards under our equity compensation plans were outstanding as of March 31, 2022. In addition, as of March 31, 2022, there were options to acquire 173,700 shares of common stock outstanding granted as inducement option awards prior to the adoption of our Inducement Plans, with a weighted average exercise price of \$15.98 and a weighted average remaining term of 4.3 years. As of March 31, 2022, there were 1,777,657 shares of common stock available for awards under our 2018 Plan, 573,944 shares of common stock available for awards under our 2019 Inducement Plan, and 1,637,000 shares of common stock available for awards under our 2020 Inducement Plan. We ceased granting awards under the 2015 Plan after our initial public offering.

Summary of Material Features of the 2018 Plan, as amended

2018 Plan, as amended by the First Amendment and the Second Amendment

The material features of the 2018 Plan, as amended by the First Amendment and Second Amendment, are summarized below. This summary is qualified in its entirety by the full text of the 2018 Plan, the First Amendment and the Second Amendment, each of which are attached hereto as Appendix A, B and C, respectively.

- **Share Authorization:** If the Second Amendment is approved by our stockholders, the number of shares of common stock reserved for issuance under the 2018 Plan would be increased by 3.7 million shares (for a total of

5,477,657 shares that would be available for future grants as of March 31, 2022 had the increase been in place on such date);

- **No Evergreen Provision:** Prior to adoption of the First Amendment, the maximum number of shares of common stock to be issued under the 2018 Plan cumulatively increased annually by four percent of the number of shares of common stock issued and outstanding on the immediately preceding December 31 (the “Annual Increase”). However, upon careful consideration of the benefits of the Annual Increase to our compensation program against the additional dilution to our stockholders, the Compensation Committee approved an automatic expiration of the Annual Increase following January 1, 2022. As a result of the First Amendment being approved by our stockholders on June 4, 2020, the Annual Increase provision automatically expired on January 1, 2022 and is no longer effective;
- **Minimum Vesting Requirement:** If the Second Amendment is approved by our stockholders, any awards that settle in shares of stock, other than such awards representing a maximum of five percent of the shares reserved for issuance under the 2018 Plan (subject to adjustment as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the our capital stock), will be granted subject to a minimum time-vesting period of at least 12 months, such that no such awards will vest prior to the first anniversary of the applicable grant date;
- **Types of Awards:** The award of stock options (both incentive and non-qualified options), stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, cash-based awards, and dividend equivalent rights is permitted;
- **No Repricing Without Stockholder Approval:** Stock options and stock appreciation rights will not be repriced in any manner without stockholder approval;
- **Non-Employee Director Compensation Limits:** The value of all awards awarded under the 2018 Plan and all other cash compensation paid by us to any non-employee director in any calendar year may not exceed \$1,000,000;
- **Dividends Payable When Underlying Shares Vest:** Dividend equivalent rights may be granted as a component of an award of restricted stock units or as a freestanding award. Any dividend equivalent rights granted as a component of restricted stock unit awards shall be settled only upon settlement or payment of, or lapse of restrictions on, such other awards, and such dividend equivalent right shall expire or be forfeited or annulled under the same conditions as such other awards;
- **No Material Amendment Without Stockholder Approval:** Any material amendment to the 2018 Plan is subject to approval by our stockholders; and
- **Term:** If the Second Amendment is approved by our stockholders, the term of the 2018 Plan would be extended from June 7, 2028 to June 8, 2032.

Rationale for Proposed Second Amendment

Recruiting and retaining qualified employees for our business, including leading scientific and technical personnel, is and will continue to be critical to our future success. While our compensation packages generally include a number of different components, we believe that equity compensation is key to linking pay to performance as it encourages employees and executive officers to work toward our success and aligns their interests with those of our stockholders by providing a means by which they can benefit from increasing the value of our stock. We face significant competition for experienced and talented personnel with critical and high demand skills in our industry, particularly with respect to gene therapy R&D and manufacturing, and stock options and other equity awards are an important component of our incentive compensation and retention objectives.

As a clinical-stage biopharmaceutical company the market price for our common stock has historically been volatile, reflecting the risks and uncertainties inherent in the development of novel therapeutic product candidates. In addition, over the past 12 months the market price of our common stock, like many of our peers and other public biopharmaceutical companies, has experienced significant downward pressure. When the market price of our common stock is below the applicable exercise price of a stock option, often referred to as “underwater” or “out-of-the-money” options, our Compensation Committee and board of directors believe that the stock option holder is not likely to exercise that stock option and will not have the desired incentive that the stock option was intended to provide. As of March 31, 2022, the closing price of our common stock on the Nasdaq Global Select Market was \$1.32 per share, and as a result approximately 95% of the options held by our employees and executive officers are underwater, thus increasing the retention issues associated with

such options. Moreover, even if the price of our common stock increases substantially from its current levels, a significant proportion of stock options held by our employees and executive officers will remain underwater, as illustrated below.

Illustrative Stock Price	Number of Shares Underlying Underwater Options (#)⁽¹⁾	Percentage of Underwater Options (%)⁽²⁾
\$1.32 ⁽³⁾	9,006,896	95%
\$5.00 ⁽⁴⁾	5,461,551	58%
\$10.00 ⁽⁵⁾	4,125,485	44%
\$15.00 ⁽⁶⁾	3,270,028	35%
\$20.00 ⁽⁷⁾	1,223,525	13%

- (1) Represents the total number of shares underlying outstanding employee stock options as of March 31, 2022 with an exercise price less than the applicable illustrative stock price.
- (2) Represents the total number of shares underlying outstanding employee stock options as of March 31, 2022 with an exercise price less than the applicable illustrative stock price, divided by 9,471,305, which is the total number of shares underlying all outstanding employee stock options as of March 31, 2022.
- (3) Reflects the closing price of our common stock as reported by the Nasdaq Global Select Market on March 31, 2022.
- (4) Represents a hypothetical increase of approximately 279% from the closing price of our common stock on March 31, 2022.
- (5) Represents a hypothetical increase of approximately 658% from the closing price of our common stock on March 31, 2022.
- (6) Represents a hypothetical increase of approximately 1,036% from the closing price of our common stock on March 31, 2022.
- (7) Represents a hypothetical increase of approximately 1,415% from the closing price of our common stock on March 31, 2022.

The Company has recently experienced significant employee attrition, with virtually all departing employees leaving the Company holding a portfolio of stock options comprised entirely of underwater options. Our Compensation Committee and board of directors believe that granting additional stock options and other equity awards to our existing employees could incentivize those employees to remain with the Company due to the lower exercise prices associated with such newly granted options. However, if the Second Amendment is not approved, the Company may not have sufficient shares of common stock available to effectively use the 2018 Plan as an employee retention tool.

Our Compensation Committee and board of directors believe that the proposed increase in the number of shares of common stock reserved for issuance under the 2018 Plan, together with the shares available under our Inducement Plans, will provide a sufficient amount of shares that can be issued as long-term incentive compensation to allow us to continue to attract valuable new employees, issue new equity awards to our current employees as part of our overall employee retention strategy, and continue to provide our employees and non-employee directors with a proprietary interest in the Company. If our stockholders do not approve the Second Amendment, we strongly believe that we may be unable to successfully continue to use equity as a significant element of our compensation program, as most of our competitors in the industry do, putting us at a significant disadvantage and compromising our ability to enhance anticipated long-term stockholder value. For example, we currently anticipate that the 1,777,657 shares that remain available for issuance under the 2018 Plan as of March 31, 2022 may not be completely sufficient to maintain our competitive equity grant practices for the 2022 year-end annual compensation cycle. Moreover, we would not be able to make grants to employees during the 2023 compensation cycle due to a lack of shares available.

Burn rate

The following table sets forth information regarding historical awards granted and earned for the 2019 through 2021 period under all of our equity incentive plans, and the corresponding burn rate, which is defined as the number of shares subject to equity-based awards granted in a year divided by the weighted average number of shares of common stock outstanding for that year, for each of the last three fiscal years:

Share Element	2019	2020	2021
Stock Options Granted	1,667,967	3,019,663	4,253,232
Full-Value Awards Granted	2,300		771,600
Total Awards Granted	1,670,267	3,019,663	5,024,832
Weighted Average Common Shares Outstanding			
During the Fiscal Year	27,432,489	36,206,000	42,854,305
Annual Burn Rate	6.09%	8.34%	11.73%

Three-Year Average Burn Rate

8.72%

Our Compensation Committee determined the size of reserved pool under the 2018 Plan based on projected equity awards to anticipated new hires, projected annual equity awards to existing employees, the number of shares available for issuance under our Inducement Plans, and an assessment of the magnitude of increase that our stockholders would find acceptable. We anticipate that if our request to increase the share reserve is approved by our stockholders, the Company will have sufficient shares available to provide equity incentives to attract, retain, and motivate employees through 2024, assuming we continue to grant equity incentives consistent with our historical usage and current practices, and noting that future circumstances may require us to change our current equity grant practices. If the Second Amendment is approved, the share reserve under the 2018 Plan could last for a longer or shorter period of time, depending on several factors including our growth and future equity grant practices, which we cannot predict with certainty at this time. The Compensation Committee intends to remain prudent stewards of stockholder capital as we continue to use equity to help drive long-term shareholder value.

Summary of the 2018 Plan, as amended by the First Amendment and the Second Amendment

The following description of certain features of the 2018 Plan, as amended by the First Amendment and the Second Amendment, is intended to be a summary only. The summary is qualified in its entirety by the full text of the 2018 Plan, the First Amendment and the Second Amendment, each of which are attached hereto as Appendix A, B, and C, respectively.

Share Reserve; ISO Limit. The maximum number of shares of stock reserved and available for issuance under the 2018 Plan will be 5,477,657 shares (comprised of the 1,777,657 shares that remained available for issuance as of March 31, 2022 plus the 3.7 million newly added shares), subject to adjustment for changes in capitalization. For purposes of this limitation, the shares of stock underlying any awards under the 2018 Plan and under the 2015 Plan that are forfeited, canceled, held back upon exercise of an option or settlement of an award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of stock or otherwise terminated (other than by exercise) will be added back (or added, as applicable) to the shares of stock available for issuance under the 2018 Plan. In the event the Company repurchases shares of stock on the open market, such shares will not be added to the shares of stock available for issuance under the 2018 Plan. Subject to such overall limitation, the maximum aggregate number of shares of stock that may be issued in the form of incentive stock options will not exceed 40,458,297, subject in all cases to adjustment for changes in capitalization. The shares available for issuance under the 2018 Plan may be authorized but unissued shares of stock or shares of stock reacquired by the Company.

Minimum Vesting. Any awards that settle in shares of stock, other than such awards representing a maximum of five percent of the shares reserved for issuance under the 2018 Plan (subject to adjustment as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the our capital stock), will be granted subject to a minimum time-vesting period of at least 12 months, such that no such awards can vest prior to the first anniversary of the applicable grant date.

Administration. The 2018 Plan will be administered by the Compensation Committee. The Compensation Committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2018 Plan. The Compensation Committee may delegate to a committee consisting of one or more officers of the Company the authority to grant awards to employees who are not subject to the reporting and other provisions of Section 16 of the Exchange Act, subject to certain limitations and guidelines.

Eligibility. All full-time and part-time officers, employees, non-employee directors and consultants are eligible to participate in the 2018 Plan, subject to the discretion of the administrator. As of December 31, 2021, approximately 133 individuals were eligible to participate in the 2018 Plan, which includes six executive officers, 116 employees who are not executive officers, seven non-employee directors, and four consultants. There are certain limits on the number of awards that may be granted under the 2018 Plan.

Director Compensation Limit. The 2018 Plan provides that the value of all awards awarded under the 2018 Plan and all other cash compensation paid by the Company to any non-employee director in any calendar year shall not exceed \$1,000,000.

Stock Options. The 2018 Plan permits the granting of (i) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Internal Revenue Code, as amended, or the Code, and (ii) options that do not so qualify. Options granted under the 2018 Plan will be non-qualified options if they fail to qualify as incentive options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of the Company and its subsidiaries. Non-qualified options may be granted to any persons eligible to receive incentive options and to non-employee directors and consultants. The option exercise price of each option will be determined by the Compensation Committee. Except in the case of options granted pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code, the exercise price of an option may not be less than 100% of the fair market value of the common stock on the date of grant. Fair market value for this purpose will be determined by reference to the price of the shares of common stock on the Nasdaq Global Select Market.

The term of each option will be fixed by the Compensation Committee and may not exceed ten years from the date of grant. The Compensation Committee will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the Compensation Committee. In general, unless otherwise permitted by the Compensation Committee, no option granted under the 2018 Plan is transferable by the optionee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order, and options may be exercised during the optionee's lifetime only by the optionee, or by the optionee's legal representative or guardian in the case of the optionee's incapacity.

Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the Compensation Committee or by delivery (or attestation to the ownership) of shares of common stock that are beneficially owned by the optionee and that are not subject to risk of forfeiture. Subject to applicable law, the exercise price may also be delivered to the Company by a broker pursuant to irrevocable instructions to the broker from the optionee. In addition, non-qualified options may be exercised using a net exercise feature which reduces the number of shares issued to the optionee by the number of shares with a fair market value equal to the exercise price.

To qualify as incentive options, options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year.

Stock Appreciation Rights. The Compensation Committee may award stock appreciation rights subject to such conditions and restrictions as the Compensation Committee may determine. Stock appreciation rights entitle the recipient to shares of common stock or cash equal to the value of the appreciation in the stock price over the exercise price. The exercise price is the fair market value of the common stock on the date of grant. The term of a stock appreciation right may not exceed ten years.

Restricted Stock. The Compensation Committee may award shares of common stock to participants subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified restricted period. During the vesting period, restricted stock awards may be credited with dividends or dividend equivalent rights (but dividends and dividend equivalents payable with respect to unvested restricted stock awards shall not be paid unless and until such vesting conditions are satisfied).

Restricted Stock Units. The Compensation Committee may award restricted stock units to participants. Restricted stock units are ultimately payable in the form of shares of common stock or cash subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified vesting period. In the Compensation Committee's sole discretion, it may permit a participant to make an advance election to receive a portion of his or her future cash compensation otherwise due in the form of a restricted stock unit award, subject to the participant's compliance with the procedures established by the Compensation Committee and requirements of Section 409A of the Code. During the vesting and/or deferral period, the deferred stock awards may be credited with dividends or dividend equivalent rights (but dividends and dividend equivalents payable with respect to unvested restricted stock units shall not be paid unless and until such vesting conditions are satisfied).

Unrestricted Stock Awards. The Compensation Committee may also grant shares of common stock which are free from any restrictions under the 2018 Plan. Unrestricted stock may be granted to any participant in recognition of past services or other valid consideration and may be issued in lieu of cash compensation due to such participant.

Dividend Equivalent Rights. The Compensation Committee may grant dividend equivalent rights to participants (other than with respect to options or stock appreciation rights), which entitle the recipient to receive credits for dividends that would be paid if the recipient had held specified shares of common stock. Dividend equivalent rights granted as a component of another award (other than a stock option or stock appreciation right) may be paid only if the related award becomes vested. Dividend equivalent rights may be settled in cash, shares of common stock or a combination thereof, in a single installment or installments, as specified in the award.

Cash-Based Awards. The Compensation Committee may grant cash bonuses under the 2018 Plan to participants. The cash bonuses may be subject to the achievement of certain performance goals.

Change of Control Provisions. In the event of a “sale event,” as defined in the 2018 Plan, awards under the 2018 Plan may be assumed, continued or substituted. In the event that awards are not assumed, continued or substituted, except as otherwise provided by the Compensation Committee in the award agreement, upon the effective time of the sale event, all awards with time-based conditions will become vested and exercisable upon the sale event, and awards with conditions and restrictions relating to the attainment of performance goals may become vested and non-forfeitable in connection with a sale event in the Compensation Committee’s discretion or to the extent specified in the relevant award agreement. In addition, the Company may make or provide for payment, in cash or in kind, to participants holding options and stock appreciation rights equal to the difference between the per share cash consideration and the exercise price of the options or stock appreciation rights (provided that, in the case of an option or stock appreciation right with an exercise price equal to or less than the per share cash consideration, such option or stock appreciation right shall be cancelled for no consideration). The Compensation Committee shall also have the option to make or provide for a payment, in cash or in kind, to grantees holding other awards in an amount equal to the per share cash consideration multiplied by the number of vested shares under such awards. All awards will terminate in connection with a sale event unless they are assumed by the successor entity.

Adjustments for Changes in Capitalization. The 2018 Plan requires the Compensation Committee to make appropriate adjustments to the number of shares of common stock that are subject to the 2018 Plan, to certain limits in the 2018 Plan, and to any outstanding awards to reflect stock dividends, stock splits, extraordinary cash dividends and similar events.

Tax Withholding. Participants in the 2018 Plan are responsible for the payment of any federal, state or local taxes that the Company is required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. The Compensation Committee may require that tax withholding obligations satisfied by withholding shares of common stock to be issued pursuant to exercise or vesting. The Compensation Committee may also require the Company’s tax withholding obligation to be satisfied, in whole or in part, by an arrangement whereby a certain number of shares issued pursuant to any award are immediately sold and proceeds from such sale are remitted to the Company in an amount that would satisfy the withholding amount due.

Amendments and Termination. The board of directors may at any time amend or discontinue the 2018 Plan and the Compensation Committee may at any time amend or cancel any outstanding award for the purpose of satisfying changes in the law or for any other lawful purpose. However, no such action may adversely affect any rights under any outstanding award without the holder’s consent. To the extent required under Nasdaq rules, any amendments that materially change the terms of the 2018 Plan will be subject to approval by our stockholders. Amendments shall also be subject to approval by our stockholders if and to the extent determined by the Compensation Committee to be required by the Code to preserve the qualified status of incentive options. Other than in connection with a change in control or change in our capitalization, without prior stockholder approval, in no event may the Compensation Committee or the board of directors exercise its discretion to reduce the exercise price of outstanding stock options or stock appreciation rights or effect a repricing through cancellation and re-grants or cancellation of stock options or stock appreciation rights in exchange for cash or other awards.

Effective Date of Plan. The Plan was originally approved by our board of directors on June 1, 2018. No awards may be granted under the 2018 Plan after the tenth anniversary of the date of stockholder approval of the 2018 Plan or stockholder approval of any amendment to add shares to the 2018 Plan, and no awards of incentive stock options may be granted after the tenth anniversary of the date the Second Amendment (or most recent amendment to add shares to the 2018 Plan) is approved by our board of directors.

New Plan Benefits

Because the grant of awards under the 2018 Plan is within the discretion of the Compensation Committee, the Company cannot determine the dollar value or number of shares of common stock that will in the future be received by or allocated to any participant in the 2018 Plan.

Awards Granted under the 2018 Plan

The following table sets forth, for each of the individuals and various groups indicated, the total number of shares subject to awards that have been granted under the 2018 Plan as of March 31, 2022, even if not currently outstanding.

Name and Position	Options		Stock Awards
	Average Exercise Price (\$)	Number of Shares (#)	Number of Shares (#)
Geoff MacKay, <i>President and Chief Executive Officer</i>	9.93	1,594,650	—
Christopher Mason, <i>Chief Scientific Officer</i>	15.12	376,000	—
Erik Ostrowski, <i>Chief Financial Officer and Treasurer</i>	10.36	846,000	2,300
All current executive officers, as a group	10.46 ⁽¹⁾	4,128,086	2,300
All current directors who are not executive officers, as a group	14.89 ⁽¹⁾	329,602	—
Each nominee for election as a director			
Gail Farfel, Ph.D.	13.64	45,438	—
Christopher Paige, Ph.D.	14.75	41,113	—
Philip J. Vickers, Ph.D.	15.07	59,856	—
Each associate of any executive officers, current directors or director nominees	—	—	—
Each other person who received or is to receive 5% of awards	—	—	—
All current employees who are not executive officers, as a group	8.63 ⁽¹⁾	2,373,953	916,706

(1) Represents the weighted-average exercise price for the group.

U.S. Tax Aspects Under the Code

The following is a summary of the principal U.S. federal income tax consequences of certain transactions under the 2018 Plan. It does not describe all U.S. federal tax consequences under the 2018 Plan, nor does it describe state, local or foreign tax consequences.

Incentive Options. No taxable income is generally realized by the optionee upon the grant or exercise of an incentive option. If shares of common stock issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then (i) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (ii) the Company will not be entitled to any deduction for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares of common stock acquired upon the exercise of an incentive option are disposed of prior to the expiration of the two-year and one-year holding periods described above (a “disqualifying disposition”), generally (i) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares of common stock at exercise (or, if less, the amount realized on a sale of such shares of common stock) over the option price thereof, and (ii) we will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive option is paid by tendering shares of common stock.

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above, the option is treated as a non-qualified option. Generally, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

Non-Qualified Options. No income is realized by the optionee at the time a non-qualified option is granted. Generally (i) at exercise, ordinary income is realized by the optionee in an amount equal to the difference between the option price and the fair market value of the shares of common stock on the date of exercise, and we receive a tax deduction for the same amount, and (ii) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares of common stock have been held. Special rules will apply where all or a portion of the exercise price of the non-qualified option is paid by tendering shares of common stock. Upon exercise, the optionee will also be subject to Social Security taxes on the excess of the fair market value over the exercise price of the option.

Other Awards. The Company generally will be entitled to a tax deduction in connection with other awards under the 2018 Plan in an amount equal to the ordinary income realized by the participant at the time the participant recognizes such income. Participants typically are subject to income tax and recognize such tax at the time that an award is exercised, vests or becomes non-forfeitable, unless the award provides for a further deferral.

Parachute Payments. The vesting of any portion of an award that is accelerated due to the occurrence of a change in control (such as a sale event) may cause a portion of the payments with respect to such accelerated awards to be treated as “parachute payments” as defined in the Code. Any such parachute payments may be non-deductible to the Company, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

Limitation on Deductions. Under Section 162(m) of the Code, the Company’s deduction for awards under the 2018 Plan may be limited to the extent that any “covered employee” (as defined in Section 162(m) of the Code) receives compensation in excess of \$1 million a year.

Equity Compensation Plan Information

The following table sets forth information as of December 31, 2021 regarding shares of common stock that may be issued under our equity compensation plans, consisting of our 2018 Plan, our 2015 Plan, our 2019 Inducement Plan, our 2020 Inducement Plan, and our Employee Stock Purchase Plan (“ESPP”).

Plan Category	Number of Shares of Common Stock to be Issued Upon Exercise of Outstanding Options and RSUs (#)	Weighted-Average Exercise Price of Outstanding Options (\$) ⁽¹⁾	Number of Shares of Common Stock Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in the First Column) (#)
Equity compensation plans approved by security holders ⁽²⁾	6,088,613 ⁽³⁾	13.39	3,734,746
Equity compensation plans not approved by security holders	1,935,014 ⁽⁴⁾	13.94	2,049,686 ⁽⁵⁾
Total	8,023,627	13.54	5,784,432

- (1) Since restricted stock units do not have any exercise price, such units are not included in the weighted average exercise price calculations.
- (2) As of March 31, 2021, there were 1,777,657 shares of common stock available for grant under our 2018 Plan, no shares available for grant under our 2015 Plan, and 1,544,308 shares of common stock available for grant under our ESPP.
- (3) Includes (i) 5,488,763 shares of common stock issuable upon the exercise of outstanding options and (ii) 599,850 shares of common stock issuable upon vesting of restricted stock units.
- (4) Consists of (i) 484,700 shares of common stock underlying non-qualified stock options that were granted prior to the adoption of our Inducement Plans as one-time awards to various new employees in accordance with Nasdaq Listing Rule 5635(c)(4), (ii) 1,387,314 shares of common stock issuable upon exercise of outstanding options granted under

our 2019 Inducement Plan and (iii) 63,000 shares of common stock issuable upon exercise of outstanding options granted under our 2020 Inducement Plan.

- (5) Consists of (i) 412,686 shares of common stock issuable under our 2019 Inducement Plan and (ii) 1,637,000 issuable under our 2020 Inducement Plan.

Vote Required

The affirmative vote of a majority of shares of common stock present in person or represented by proxy at the meeting and entitled to vote on this proposal is required for the approval of the Second Amendment.

The board of directors recommends voting “FOR” Proposal No. 3 to approve an amendment to the AVROBIO, Inc. 2018 Stock Option and Incentive Plan.

CORPORATE GOVERNANCE

Director Nomination Process

Our Nominating and Corporate Governance Committee is responsible for identifying individuals qualified to serve as directors, consistent with criteria approved by our board, and recommending such persons to be nominated for election as directors, except where we are legally required by contract, law or otherwise to provide third parties with the right to nominate.

The process followed by our Nominating and Corporate Governance Committee to identify and evaluate director candidates includes requests to board members and others for recommendations, meetings from time to time to evaluate biographical information and background material relating to potential candidates, and interviews of selected candidates by management, recruiters, members of the committee and our board. The minimum qualifications, qualities and skills that our Nominating and Corporate Governance Committee believes must be met by a committee-recommended nominee for a position on our board of directors are as follows:

- The nominee shall have experience at a strategic or policymaking level in a business, government, non-profit or academic organization of high standing.
- The nominee shall be highly accomplished in his or her respective field, with superior credentials and recognition.
- The nominee shall be well regarded in the community and shall have a long-term reputation for the high ethical and moral standards.
- The nominee shall have sufficient time and availability to devote to the affairs of the Company, particularly in light of the number of boards of directors on which such nominee may serve.
- To the extent such nominee serves or has previously served on other boards, the nominee shall have a demonstrated history of actively contributing at board meetings.

In addition to the foregoing, the Nominating and Corporate Governance Committee will consider other facts and circumstances that it deems appropriate or advisable, as outlined in the Company's Corporate Governance Guidelines.

Stockholders may recommend individuals to the Nominating and Corporate Governance Committee for consideration as potential director candidates. Any such proposals should be submitted to our Corporate Secretary at our principal executive offices no later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the one-year anniversary of the date of the preceding year's annual meeting and should include appropriate biographical and background material to allow the Nominating and Corporate Governance Committee to properly evaluate the potential director candidate and the number of shares of our stock beneficially owned by the stockholder proposing the candidate. Stockholder proposals should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary. Assuming that biographical and background material has been provided on a timely basis in accordance with our bylaws, any recommendations received from stockholders will be evaluated in the same manner as potential nominees proposed by the Nominating and Corporate Governance Committee. If our board of directors determines to nominate a stockholder-recommended candidate and recommends his or her election, then his or her name will be included on our proxy card for the next annual meeting of stockholders. See "Stockholder Proposals" for a discussion of submitting stockholder proposals.

Director Independence

Applicable Nasdaq rules require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, the Nasdaq rules require that, subject to specified exceptions, each member of a listed company's Audit, Compensation and Nominating and Corporate Governance Committees be independent and that Audit Committee members also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act and that Compensation Committee members satisfy independence criteria set forth in Rule 10C-1 under the Exchange Act. Under applicable Nasdaq rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3, a member of an Audit Committee of a listed company may not, other than in his or her capacity as a member of the Audit Committee, the board of directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries. In addition, in affirmatively determining the independence of any director who will serve on a

company's Compensation Committee, Rule 10C-1 under the Exchange Act requires that a company's board of directors must consider all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a Compensation Committee member, including: the source of compensation to the director, including any consulting, advisory or other compensatory fee paid by such company to the director, and whether the director is affiliated with the company or any of its subsidiaries or affiliates.

Our board of directors has determined that all members of the board of directors, except Mr. MacKay and Dr. Farfel, are independent directors, including for purposes of the rules of Nasdaq and the SEC. In making such independence determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director. In considering the independence of the directors listed above, our board of directors considered the association of our directors with the holders of more than 5% of our common stock. There are no family relationships among any of our directors or executive officers. Mr. MacKay is not an independent director under these rules because he is an executive officer of the Company. Dr. Farfel is not an independent director under these rules because an immediate family member is employed by Ernst & Young LLP, our independent registered public accounting firm.

Board Committees

Our board of directors has established an Audit Committee, a Compensation Committee, a Nominating and Corporate Governance Committee and a Science & Technology Committee. Each of the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee operates under a charter that satisfies the applicable standards of the SEC and Nasdaq, and the Science & Technology Committee, while not subject to specific SEC or Nasdaq rules, also operates under a charter. Each such committee reviews its respective charter at least annually. A current copy of the charter for each of the Audit Committee, Compensation Committee, Nominating and Corporate Governance Committee, and Science & Technology Committee is posted on the Investors & Media – Corporate Governance section of our website, www.avrobio.com.

Audit Committee

Phillip Donenberg, Annalisa Jenkins and Christopher Paige serve on the Audit Committee, which is chaired by Mr. Donenberg. Our board of directors has determined that each member of the Audit Committee is "independent" for Audit Committee purposes as that term is defined in the rules of the SEC and the applicable Nasdaq rules, and each has sufficient knowledge in financial and auditing matters to serve on the Audit Committee. Our board of directors has designated Mr. Donenberg as an "audit committee financial expert," as defined under the applicable rules of the SEC. During the fiscal year ended December 31, 2021, the Audit Committee met eight times. The report of the Audit Committee is included in this proxy statement under "Report of the Audit Committee." The Audit Committee's responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the Audit Committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;

- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the Audit Committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing and discussing quarterly earnings releases.

All audit and non-audit services, other than *de minimis* non-audit services, to be provided to us by our independent registered public accounting firm must be approved in advance by our Audit Committee.

Compensation Committee

Ian Clark, Bruce Booth and Philip Vickers serve on the Compensation Committee, which is chaired by Mr. Clark. Our board of directors has determined that each member of the Compensation Committee is “independent” as defined in the applicable Nasdaq rules. During the fiscal year ended December 31, 2021, the Compensation Committee met six times. The Compensation Committee’s responsibilities include:

- annually reviewing and approving corporate goals and objectives relevant to the compensation of our chief executive officer;
- evaluating the performance of our chief executive officer in light of such corporate goals and objectives, and based on such evaluation, reviewing and approving the proposed compensation for our chief executive officer, including (i) the cash compensation of our chief executive officer, (ii) grants and awards to our chief executive officer under equity-based plans, (iii) amendments to or extensions of our chief executive officer’s employment agreement or other similar arrangements, (iv) any severance or change in control arrangement, (v) any supplemental or retirement benefits, and (vi) any other compensation matters as may be directed by the Compensation Committee or our board of directors;
- annually evaluating the performance of, or reviewing our chief executive officer’s assessment of, our other executive officers in light of the corporate goals and objectives relevant to their compensation;
- reviewing and approving the cash compensation of our other executive officers;
- establishing and periodically reviewing any policies and programs concerning perquisite benefits and non-cash or other benefits for our executive officers;
- reviewing and establishing our overall management compensation, philosophy, and policy;
- reviewing our overall compensation policies and practices, and assessing whether any risks arising from such policies and practices are reasonably likely to have a material adverse effect on the Company;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing our Compensation Committee report if and when required by SEC rules;
- reviewing and discussing with the board of directors corporate succession plans for our chief executive officer and our other key officers;
- reviewing and discussing annually with management our “Compensation Discussion and Analysis,” if and when required, to be included in our annual proxy statement;
- reviewing and discussing with our board of directors management proposals to our stockholders as well as proposals received from our stockholders that relate to executive compensation matters;
- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters; and

- retaining and approving the compensation of any compensation advisors.

Nominating and Corporate Governance Committee

Annalisa Jenkins, Phillip Donenberg and Christopher Paige serve on the Nominating and Corporate Governance Committee, which is chaired by Dr. Jenkins. Our board of directors has determined that each member of the Nominating and Corporate Governance Committee is “independent” as defined in the applicable Nasdaq rules. During the fiscal year ended December 31, 2021, the Nominating and Corporate Governance Committee met three times. The Nominating and Corporate Governance Committee’s responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the size and composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board’s committees;
- developing and recommending to the board of directors a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors.

The Nominating and Corporate Governance Committee considers candidates for board of director membership suggested by its members and the chief executive officer. Additionally, in selecting nominees for directors, the Nominating and Corporate Governance Committee will review candidates recommended by stockholders in the same manner and using the same general criteria as candidates recruited by the committee and/or recommended by our board of directors. Any stockholder who wishes to recommend a candidate for consideration by the committee as a nominee for director should follow the procedures described later in this proxy statement under the heading “Stockholder Proposals.” The Nominating and Corporate Governance Committee will also consider whether to nominate any person proposed by a stockholder in accordance with the provisions of our bylaws relating to stockholder nominations as described later in this proxy statement under the heading “Stockholder Proposals.”

Identifying and Evaluating Director Nominees. Our board of directors is responsible for filling vacancies on our board of directors and for nominating candidates for election by our stockholders each year in the class of directors whose term expires at the relevant annual meeting. The board of directors delegates the selection and nomination process to the Nominating and Corporate Governance Committee, with the expectation that other members of the board of directors, and of management, will be requested to take part in the process as appropriate.

Generally, the Nominating and Corporate Governance Committee identifies candidates for director nominees in consultation with management, through the use of search firms or other advisors, through the recommendations submitted by stockholders or through such other methods as the Nominating and Corporate Governance Committee deems to be helpful to identify candidates. Once candidates have been identified, the Nominating and Corporate Governance Committee confirms that the candidates meet all of the minimum qualifications for director nominees established by the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee may gather information about the candidates through interviews, detailed questionnaires, comprehensive background checks or any other means that the Nominating and Corporate Governance Committee deems to be appropriate in the evaluation process. The Nominating and Corporate Governance Committee then meets as a group to discuss and evaluate the qualities and skills of each candidate, both on an individual basis and taking into account the overall composition and needs of our board of directors. Based on the results of the evaluation process, the Nominating and Corporate Governance Committee recommends candidates for the board of directors’ approval to fill a vacancy or as director nominees for election to the board of directors by our stockholders each year in the class of directors whose term expires at the relevant annual meeting.

Science & Technology Committee

Philip Vickers, Bruce Booth, Gail Farfel, Annalisa Jenkins and Christopher Paige serve on the Science & Technology Committee, which is chaired by Dr. Vickers. During the fiscal year ended December 31, 2021, the Science & Technology Committee met six times. The Science & Technology Committee's responsibilities include:

- reviewing and advising the board of directors on our research and development, or R&D, programs and progress in achieving R&D goals and objectives;
- advising the board of directors on the scientific and R&D aspects of licensing, collaboration and acquisition transactions that require approval by the board of directors;
- overseeing management's exercise of its responsibility to assess and manage risks associated with our R&D activities, clinical development and intellectual property; and
- making any recommendations to the board of directors that the Science & Technology Committee deems appropriate on any areas within its responsibility, including where action or improvement is needed.

Board and Committee Meetings Attendance

The full board of directors met seven times during 2021. During 2021, each member of the board of directors attended in person or participated in 75% or more of the aggregate of (i) the total number of meetings of the board of directors (held during the period for which such person has been a director) and (ii) the total number of meetings held by all committees of the board of directors on which such person served (during the periods that such person served).

Director Attendance at Annual Meeting of Stockholders

We do not have a policy with regard to our board members' attendance at our annual meetings of stockholders, but all our directors, other than Ian Clark, attended the 2021 Annual Meeting of Stockholders which was held on June 10, 2021.

Policy on Trading, Pledging and Hedging of Company Stock

Certain transactions in our securities (such as purchases and sales of publicly traded put and call options, and short sales) create a heightened compliance risk or could create the appearance of misalignment between management and stockholders. In addition, securities held in a margin account or pledged as collateral may be sold without consent if the owner fails to meet a margin call or defaults on the loan, thus creating the risk that a sale may occur at a time when an officer or director is aware of material, non-public information or otherwise is not permitted to trade in Company securities. Our insider trading policy expressly prohibits our executive officers, directors and designated employees and consultants from engaging in certain prohibited transactions, including short sales, purchases or sales of derivative securities or hedging transactions, the use of our securities as collateral in a margin account, and pledging of our securities.

Code of Business Conduct and Ethics

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the code is posted on the Investors & Media – Corporate Governance section of our website, which is located at www.avrobio.com. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a Current Report on Form 8-K.

Board Leadership Structure and Board's Role in Risk Oversight

Currently, the role of chairperson of the board is separated from the role of chief executive officer. We believe that separating these positions allows our chief executive officer to focus on our day-to-day business, while allowing the chairperson of the board to lead the board of directors in its fundamental role of providing advice to, and independent oversight, of management. Our board of directors recognizes the time, effort, and energy that the chief executive officer is required to devote to his position in the current business environment, as well as the commitment required to serve as our chairperson, particularly as the board of directors' oversight responsibilities continue to grow. While our bylaws and our corporate governance guidelines do not require that our chairperson and chief executive officer positions be separate, our board of

directors believes that having separate positions is the appropriate leadership structure for us at this time and demonstrates our commitment to good corporate governance.

Risk is inherent to every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including risks relating to our financial condition, development and commercialization activities, operations, strategic direction, and intellectual property. Management is responsible for the day-to-day management of risks we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, our board of directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed.

Generally, the role of the board of directors in overseeing the management of our risks is conducted primarily through committees of the board of directors, as disclosed in the descriptions of each of the committees above and in the charters of each of the committees. However, at least annually management provides to the full board of directors an overview of potential risks to the Company, which is then updated and presented to the Audit Committee on a periodic (currently quarterly) basis. The full board of directors (or the appropriate board committee in the case of risks that are under the purview of a particular committee) discusses with management our major risk exposures, their potential impact on us, and the steps we take to manage them. When a board committee is responsible for evaluating and overseeing the management of a particular risk or risks, the chairperson of the relevant committee reports on the discussion to the full board of directors during the committee reports portion of the next board meeting. This enables the board of directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

Communication with the Directors of AVROBIO

Any interested party with concerns about our Company may report such concerns to the board of directors or the chairperson of our board of directors or Nominating and Corporate Governance Committee, by submitting a written communication to the attention of such director at the following address:

c/o AVROBIO, Inc.
One Kendall Square
Building 300, Suite 201
Cambridge, Massachusetts 02139
United States

You may submit your concern anonymously or confidentially by postal mail. You may also indicate whether you are a stockholder, customer, supplier, or other interested party.

A copy of any such written communication may also be forwarded to AVROBIO's legal counsel and a copy of such communication may be retained for a reasonable period of time. The director may discuss the matter with AVROBIO's legal counsel, with independent advisors, with non-management directors, or with AVROBIO's management, or may take other action or no action as the director determines in good faith, using reasonable judgment, and applying his or her own discretion.

Communications may be forwarded to other directors if they relate to important substantive matters and include suggestions or comments that may be important for other directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded than communications relating to ordinary business affairs, personal grievances, and matters as to which we tend to receive repetitive or duplicative communications.

The Audit Committee oversees the procedures for the receipt, retention, and treatment of complaints received by AVROBIO regarding accounting, internal accounting controls, or audit matters, and the confidential, anonymous submission by employees of concerns regarding questionable accounting, internal accounting controls or auditing matters. AVROBIO has also established a toll-free telephone number for the reporting of such activity, which is 1-866-569-1843.

Board and Committee Evaluations

The Nominating and Corporate Governance Committee oversees and establishes the annual board and committee evaluation process. Generally, the board and each committee conduct self-evaluations by means of written questionnaires completed by each director and committee member. The anonymous responses are summarized and provided to the board and each committee at their next meetings in order to facilitate an examination and discussion by the board and each committee of the effectiveness of the board and committees, board and committee structure and dynamics, and areas for possible improvement.

The Nominating and Corporate Governance Committee annually establishes the board and committee evaluation process and may determine to use an independent third party evaluation process from time to time in the future. For example, in 2020 the Company engaged an independent third-party consultant to interview board members on board performance and then provided feedback to the Nominating and Corporate Governance Committee for review and consideration.

Director Compensation

The following table presents the total compensation for each person who served as a non-employee member of our board of directors and received compensation for such service during the fiscal year ended December 31, 2021. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards or non-equity awards to, or pay any other compensation to any of the non-employee members of our board of directors in 2021. We reimburse non-employee members of our board of directors for reasonable travel expenses. Mr. MacKay, our President and Chief Executive Officer, did not receive any compensation for his service as a member of our board of directors in 2021. Mr. MacKay's compensation for service as an employee for fiscal year 2021 is presented in "Executive Compensation—Summary Compensation Table."

NAME	FEES EARNED OR		TOTAL (\$)
	PAID IN CASH (\$)	OPTION AWARDS (\$) ⁽¹⁾	
Bruce Booth, D.Phil. ⁽²⁾	79,500	118,326	197,826
Ian Clark ⁽³⁾	47,500	118,326	165,826
Phillip Donenberg ⁽⁴⁾	55,500	118,326	173,826
Gail Farfel ⁽⁵⁾	43,250	118,326	161,576
Annalisa Jenkins, M.B.B.S., F.R.C.P. ⁽⁶⁾	58,750	118,326	177,076
Christopher Paige, Ph.D. ⁽⁷⁾	54,750	118,326	173,076
Philip Vickers, Ph.D. ⁽⁸⁾	54,000	118,326	172,326

- (1) Amounts reflect the grant date fair value of option awards granted or modified in 2021 in accordance with the Financial Accounting Standards Board's Accounting Standards Codification Topic 718, or ASC 718. Such grant date fair value does not take into account any estimated forfeitures related to service-vesting conditions. See Note 9 of "Notes to Consolidated Financial Statements" in our Annual Report on Form 10-K filed with the SEC on March 17, 2022 for a discussion of assumptions made by us in determining the aggregate grant date fair value of our option awards. These amounts do not correspond to the actual value that may be recognized by the director upon vesting of applicable awards.
- (2) As of December 31, 2021, Dr. Booth held options to purchase a total of 41,113 shares of our common stock, of which 23,675 shares were vested as of such date.
- (3) As of December 31, 2021, Mr. Clark held options to purchase an aggregate of 120,135 shares of our common stock, of which 100,804 shares were vested as of such date.
- (4) As of December 31, 2021, Mr. Donenberg held options to purchase an aggregate of 59,856 shares of our common stock, of which 42,418 shares were vested as of such date.
- (5) As of December 31, 2021, Dr. Farfel held an option to purchase an aggregate of 45,438 shares of our common stock, of which 10,889 shares were vested as of such date.
- (6) As of December 31, 2021, Dr. Jenkins held options to purchase an aggregate of 80,624 shares of our common stock, of which 60,717 shares were vested as of such date.
- (7) As of December 31, 2021, Dr. Paige held options to purchase 41,113 shares of our common stock, of which 23,675 shares were vested as of such date.
- (8) As of December 31, 2021, Dr. Vickers held options to purchase an aggregate of 59,856 shares of our common stock, of which 41,897 shares were vested as of such date.

Non-Employee Director Compensation Policy

Our board of directors has adopted a non-employee director compensation policy that is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Pursuant to the policy, each director who is not an employee will be paid cash compensation as set forth below:

	NON- CHAIRPERSON MEMBER ANNUAL FEE (\$)	CHAIRPERSON ANNUAL FEE (\$)
Board of Directors	40,000 ⁽¹⁾	72,500 ⁽²⁾
Audit Committee	7,500	15,000
Compensation Committee	5,000	10,000
Nominating and Corporate Governance Committee	4,000	8,000
Science and Technology Committee	7,500 ⁽³⁾	15,000 ⁽⁴⁾

- (1) On March 3, 2021, following discussion with the Company's compensation consultant, the board of directors amended the non-employee director compensation policy to increase the non-chairperson member annual fee from \$35,000 to \$40,000, effective July 1, 2021.
- (2) On March 3, 2021, following discussion with the Company's compensation consultant, the board of directors amended the non-employee director compensation policy to increase the chairperson annual fee from \$65,000 to \$72,500, effective July 1, 2021.
- (3) On June 10, 2021, following discussion with the Company's compensation consultant, the board of directors amended the non-employee director compensation policy to increase the non-chairperson Science and Technology Committee member annual fee from \$4,000 to \$7,500, effective July 1, 2021.
- (4) On June 10, 2021, following discussion with the Company's compensation consultant, the board of directors amended the non-employee director compensation policy to increase the chairperson Science and Technology Committee annual fee from \$8,000 to \$15,000, effective July 1, 2021.

On June 10, 2021, following discussion with the Company's compensation consultant, the board of directors amended the non-employee director compensation policy with respect to equity compensation. Prior to such amendment, each non-employee director first elected to or appointed to serve on our board of directors was granted an option award for 28,000 shares of common stock which would vest in 36 equal monthly installments, and on each annual meeting of stockholders of our Company each continuing non-employee director would be granted an option award for 14,000 shares of our common stock which would vest in full upon the earlier to occur of the first anniversary of the date of grant or the date of our following annual meeting of stockholders. Pursuant to the amendment adopted by our board of directors on June 10, 2021, each non-employee director first elected or appointed to serve on our board of directors is now granted an option award for a number of shares of our common stock equivalent to 0.08% of the total number of common stock shares outstanding on the date of grant, which vests in 36 equal monthly installments over a three-year period, subject to the director's continued service through such vesting dates. In addition, on the date of each annual meeting of stockholders of our Company, each continuing non-employee director is now granted an option award for a number of shares of our common stock equivalent to 0.04% of the total number of common stock shares outstanding on the date of grant, which vests in full upon the earlier to occur of the first anniversary of the date of grant or the date of our following annual meeting of stockholders, subject to continued service as a director through such vesting date.

The board of directors, in consultation with the Company's compensation consultant, will continue to review non-employee director compensation from time to time.

Executive Compensation

As an emerging growth company, we have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies," as such term is defined in the rules promulgated under the Securities Act. This section provides an overview of the compensation awarded to, earned by, or paid to our principal executive officer and our next two most highly compensated executive officers in respect of their service to our Company for our fiscal year ended December 31, 2021 and up to two additional individuals for whom disclosure would have been provided but for the fact that the individual was not serving as an executive officer as of December 31, 2021. We refer to these individuals as our 2021 named executive officers. Our 2021 named executive officers are:

- Geoff MacKay, our Chief Executive Officer and President;

- Christopher Mason, our Chief Scientific Officer; and
- Erik Ostrowski, our Chief Financial Officer and Treasurer.

Our executive compensation program is based on a pay for performance philosophy. Compensation for our executive officers is composed primarily of the following main components: base salary; bonus; and equity incentives in the form of options. Our executive officers, like all full-time employees, are eligible to participate in our health and welfare benefit plans.

Summary Compensation Table

The following table sets forth information regarding compensation awarded to, earned by, or paid to each of our named executive officers for services rendered to us in all capacities during the fiscal year ended December 31, 2021. The following table also presents information regarding the compensation awarded to, and earned by, and paid to each such individual during the fiscal year ended December 31, 2020, to the extent such individual was a named executive officer for such year.

Name	Year	Salary (\$)	Bonus (\$)⁽¹⁾	Option awards (\$)⁽²⁾	Non-Equity Incentive Plan Compensation (\$)⁽³⁾	All other compensation (\$)	Total (\$)
Geoff MacKay <i>President and Chief Executive Officer</i>	2021	559,702	—	4,608,631	184,702	9,987 ⁽⁴⁾	5,363,022
	2020	543,400	258,115	4,093,165		9,715	4,904,395
Christopher Mason <i>Chief Scientific Officer</i>	2021	419,350	—	2,215,463	100,644	1,287 ⁽⁵⁾	2,736,744
Erik Ostrowski <i>Chief Financial Officer and Treasurer</i>	2021	439,254	—	2,150,945	105,421	9,987 ⁽⁶⁾	2,705,607
	2020	424,400	162,969	1,412,933		9,715	2,010,017

(1) The 2020 amounts reflect the discretionary bonus paid in 2021 for performance during 2020.

(2) Amounts reflect the grant date fair value of equity awards granted or modified in 2021 and 2020 in accordance with ASC 718. Such grant date fair value does not take into account any estimated forfeitures related to service-vesting conditions. See Note 9 of “Notes to Consolidated Financial Statements” in our Annual Report on Form 10-K filed with the SEC on March 17, 2022 for a discussion of assumptions made by us in determining the aggregate grant date fair value of our equity awards. These amounts do not correspond to the actual value that may be recognized by the 2021 named executive officers upon vesting of applicable awards.

(3) Amounts reflect bonuses paid with respect to performance during the 2021 fiscal year, as discussed under “Narrative to Summary Compensation Table – Annual Bonus.”

(4) Amount reflects the dollar value of 401(k) contributions and life insurance premiums paid by us on behalf of Mr. MacKay.

(5) Amount reflects the dollar value of life insurance premiums paid by us on behalf of Dr. Mason.

(6) Amount reflects the dollar value of 401(k) contributions and life insurance premiums paid by us on behalf of Mr. Ostrowski.

Narrative to Summary Compensation Table

Our board of directors and Compensation Committee review compensation annually for all employees, including our executives. In setting executive base salaries and bonuses and granting equity incentive awards, we consider compensation for comparable positions in the market, the historical compensation levels of our executives, individual performance as compared to our expectations and objectives, our desire to motivate our employees to achieve short- and long-term results that are in the best interests of our stockholders, and a long-term commitment to our Company. We target a general competitive position, based on independent third-party benchmark analytics to inform the mix of compensation of base salary, bonus or long-term incentives.

Our Compensation Committee reviews and approves the compensation to be paid to our chief executive officer and our other executive officers. Our Compensation Committee typically reviews and discusses management's proposed compensation with the chief executive officer for all executives other than the chief executive officer. Based on those discussions and its discretion, taking into account the factors noted above, the Compensation Committee then approves the compensation of our chief executive officer and other executive officers without the chief executive officers or other members of management present. Frederic W. Cook & Co., Inc., or FW Cook, advised the board of directors and the Compensation Committee on certain compensation matters and decisions during fiscal year 2021. FW Cook served at the discretion of the Compensation Committee and did not provide any other services to the Company during fiscal year 2021 other than those for which they were engaged by the Compensation Committee. Our Compensation Committee requires that its compensation consultants be independent of Company management and performs an annual assessment of the compensation consultants' independence to determine whether the consultants are independent. Our Compensation Committee has determined that FW Cook is independent and that its respective work has not raised any conflicts of interest.

Annual Base Salary

We use base salaries to recognize the experience, skills, knowledge and responsibilities required of all our employees, including our 2021 named executive officers. Base salaries for our named executive officers are reviewed annually by our Compensation Committee, typically in connection with our annual performance review process, and adjusted from time to time, based on the recommendation of the Compensation Committee, to realign salaries with market levels after taking into account individual responsibilities, performance and experience. None of our 2021 named executive officers is currently party to an employment agreement or other agreement or arrangement that provides for automatic or scheduled increases in base salary.

During 2021, the annual base salaries for each of Mr. MacKay, Dr. Mason and Mr. Ostrowski were \$559,701.96, \$419,350.08, and \$439,254.00, respectively.

Annual Bonus

We currently have a Senior Executive Cash Incentive Bonus Plan, which is intended to reward our executive officers, including our named executive officers, for meeting objective and/or subjective performance goals for a fiscal year. From time to time, our board of directors or Compensation Committee may approve annual bonuses for our executive officers, including our named executive officers, based on individual performance, company performance or as otherwise determined appropriate.

Performance goals for each new fiscal year are approved by our Board of Directors. The Compensation Committee then reviews and determines the Company's performance and level of attainment of such goals following the completion of the applicable fiscal year. For 2021, annual bonuses were based on achievement of Company goals related to achievement of preclinical and clinical program objectives and milestones, manufacturing development objectives, and regulatory objectives.

With respect to performance in fiscal year 2021, the target bonus opportunity as a percentage of base salary for each of Mr. MacKay, Dr. Mason and Mr. Ostrowski were 55%, 40% and 40%, respectively.

Equity Compensation

Although we do not have a formal policy with respect to the grant of equity incentive awards to our executive officers, or any formal equity ownership guidelines applicable to them, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executives and our stockholders. In addition, we believe that equity grants with a time-based vesting feature promote executive retention because this feature incentivizes our executive officers to remain in our employment during the vesting period. Accordingly, our board of directors periodically reviews the equity incentive compensation of our named executive officers and from time to time may grant equity incentive awards to them in the form of stock options.

We typically grant stock option awards to each of our executives in connection with their start of employment. Such stock option awards are typically granted on the first trading day of the month after the employees' start date. We set the option exercise price and grant date fair value based on the value of our common stock on the date of grant. For grants in connection with initial employment, vesting begins on the initial date of employment. For our employees other than our executives, in 2021 we began granting restricted stock units in connection with their start of employment, which are typically granted on the first trading day of the month after the employees' start date and begin vesting on their initial date of employment.

401(k) Plan

We maintain a tax-qualified retirement plan that provides eligible employees with an opportunity to save for retirement on a tax-advantaged basis. All participants' interests in their contributions are 100% vested when contributed. Contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participants' directions. The retirement plan is intended to qualify under Section 401(a) of the Internal Revenue Code of 1986, as amended, or the Code. Matching contributions to the plan are made at the discretion of our board of directors.

Employment Arrangements with Our Named Executive Officers

We have entered into employment agreements with each of Geoff MacKay, Christopher Mason and Erik Ostrowski which set forth the initial terms and conditions of each executive's employment with us, including base salary, target annual bonus opportunity and standard employee benefit plan participation. These employment agreements provide for "at will" employment. The material terms of the employment agreements with our 2021 named executive officers are described below. The terms "change of control," "cause" and "good reason" referred to below are defined in the applicable agreement.

Employment Agreement with Geoff MacKay

Effective upon the closing of our initial public offering in June 2018, we entered into an amended employment agreement with Geoff MacKay, our President and Chief Executive Officer. Under the terms of the employment agreement, Mr. MacKay is entitled to receive an annual base salary of \$500,000 and an annual target bonus of 50% of his annual base salary based upon our board of directors' assessment of Mr. MacKay's performance and our attainment of targeted goals as set by the board of directors in its sole discretion. Mr. MacKay also previously entered into a Confidentiality and IP Assignment Agreement with us, the terms of which are incorporated into his employment agreement.

Mr. MacKay's employment agreement provides that, in the event that his employment is terminated by us without "cause" or Mr. MacKay resigned with "good reason," subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to 100% of his base salary, provided that Mr. MacKay has not breached any of the confidentiality, noncompetition or cooperation provisions set forth in, or incorporated into, the new employment agreement, payable on our normal payroll cycle, and (ii) reimbursement of COBRA premiums for health benefit coverage, up to an amount equal to the monthly employer contribution that we would have made to provide health insurance to Mr. MacKay had he remained employed with us for up to 12 months. Additionally, all stock options and other stock based awards held by Mr. MacKay that would have vested if he had remained employed by us for an additional 12 months following the date of termination will vest and become exercisable or non-forfeitable as of the date of termination.

Under the employment agreement, in the event of a "change in control" all time-based stock options and other stock-based awards granted to Mr. MacKay at least 12 months prior to the effective date of the employment agreement shall accelerate and become fully exercisable or non-forfeitable immediately prior to the change in control. In addition, in the event that Mr. MacKay is terminated by us without "cause" or Mr. MacKay resigns for "good reason" within three months prior to or 18 months after a change in control, subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to 150% of the sum of his base salary plus target bonus for that year, and (ii) reimbursement of COBRA premiums for health benefit coverage, up to an amount equal to the monthly employer contribution that we would have made to provide health insurance to Mr. MacKay had he remained employed with us for up to 18 months. Additionally, all then unvested time-based stock options and other stock-based awards granted to Mr. MacKay will vest and become exercisable or non-forfeitable as of the date of termination.

Employment Agreement with Christopher Mason

On September 1, 2018, we entered into an employment agreement with Dr. Mason for the position of Chief Science Officer. Under the terms of the employment agreement, Dr. Mason is entitled to receive an annual base salary of \$303,850 and, effective July 1, 2018, an annual target bonus of 35% of his annual base salary based upon our board of directors' assessment of Dr. Mason's performance and our attainment of targeted goals as set by the board of directors in its sole discretion. Dr. Mason also entered into a Confidentiality and IP Assignment Agreement with us, the terms of which are incorporated into his employment agreement.

On April 25, 2022, we entered into an amendment to Dr. Mason's employment agreement, or the Amendment. Pursuant to the Amendment, Dr. Mason will devote 50% of his full working time and efforts to the business and affairs of AVROBIO during the period of April 1, 2022 through June 30, 2022, and he will receive an annual base salary rate of \$215,000.04 during such period. Dr. Mason will not be eligible for any cash or equity incentive compensation for 2022, and he will not be eligible for severance payments upon the termination of his employment. Dr. Mason's employment with us is expected to end on June 30, 2022.

Employment Agreement with Erik Ostrowski

On December 17, 2018, we entered into an employment agreement with Erik Ostrowski for the position of Chief Financial Officer. Under the terms of the employment agreement, Mr. Ostrowski is entitled to receive an annual base salary of \$412,000 and an annual target bonus of 40% of his annual base salary based upon our board of directors' assessment of Mr. Ostrowski's performance and our attainment of targeted goals as set by the board of directors in its sole discretion. Mr. Ostrowski also received a signing bonus in the form of (i) a one-time cash bonus of \$170,000 and (ii) a restricted stock unit for 2,300 shares of our common stock, or the Signing Bonus Award. In addition, pursuant to the terms of the employment agreement, Mr. Ostrowski was granted an option to purchase 186,000 shares of our common stock, or the New Hire Award. Each of the Signing Bonus Award and the New Hire Award will vest over four years, with 25% of the shares vesting on the one-year anniversary of Mr. Ostrowski's start date and the remaining shares vesting in thirty-six equal monthly installments thereafter, subject to Mr. Ostrowski's continued service to our Company through the applicable vesting date. Mr. Ostrowski also entered into an Employee Confidentiality, Assignment and Noncompetition Agreement with us, the terms of which are incorporated into his employment agreement.

Mr. Ostrowski's employment agreement provides that, in the event that his employment is terminated by us without "cause" or Mr. Ostrowski resigns with "good reason," subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to 75% of his base salary less any amount paid to Mr. Ostrowski in the same calendar year under the Employee Confidentiality, Assignment and Noncompetition Agreement, provided that Mr. Ostrowski has not breached any of the confidentiality, noncompetition or cooperation provisions set forth in, or incorporated into, the employment agreement, payable on our normal payroll cycle, and (ii) reimbursement of COBRA premiums for health benefit coverage, up to an amount equal to the monthly employer contribution that we would have made to provide health insurance to Mr. Ostrowski had he remained employed with us for up to nine months. Additionally, all stock options and other stock based awards held by Mr. Ostrowski that would have vested if he had remained employed by us for an additional nine months following the date of termination will vest and become exercisable or non-forfeitable as of the date of termination.

Under the employment agreement, in the event of a "change in control" all time-based stock options and other stock-based awards granted to Mr. Ostrowski at least 12 months prior to the effective date of the employment agreement shall accelerate and become fully exercisable or non-forfeitable immediately prior to the change in control. In addition, in the event that Mr. Ostrowski is terminated by us without "cause" or Mr. Ostrowski resigns for "good reason" within three months prior to or 18 months after a "change in control," subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to 100% of the sum of his base salary plus target bonus for that year, less any amount paid to Mr. Ostrowski in the same calendar year under the Employee Confidentiality, Assignment and Noncompetition Agreement, and (ii) reimbursement of COBRA premiums for health benefit coverage, up to an amount equal to the monthly employer contribution that we would have made to provide health insurance to Mr. Ostrowski had he remained employed with us for up to 12 months. Additionally, all then unvested time-based stock options and other stock-based awards granted to Mr. Ostrowski will vest and become exercisable or non-forfeitable as of the date of termination.

Outstanding Equity Awards at 2021 Fiscal Year-End

The following table sets forth information concerning outstanding equity awards held by our 2021 named executive officers as of December 31, 2021. All equity awards set forth in the table below were granted under either our 2015 Plan or our 2018 Plan.

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock that Have Not Vested (#)	Market Value of Shares or Units that Have Not Vested (\$) ⁽¹⁾
Geoff MacKay	142,013	—	0.41	4/12/2026	—	—
	45,999	5,750 ⁽²⁾	0.91	6/12/2027	—	—
	288,927	96,309 ⁽³⁾	5.00	3/15/2028	—	—
	68,750	56,250 ⁽⁴⁾	15.00	3/5/2029	—	—
	127,881	292,300 ⁽⁵⁾	21.44	3/3/2030	—	—
	—	343,850 ⁽⁶⁾	16.02	2/3/2031	—	—
	—	125,000 ⁽⁷⁾	9.63	6/9/2031	—	—
Christopher Mason	70,587	—	0.41	4/12/2026	—	—
	27,658	—	1.20	10/24/2026	—	—
	21,708	—	0.91	6/12/2027	—	—
	27,781	1,852 ⁽³⁾	5.00	3/15/2028	—	—
	35,417	14,583 ⁽⁸⁾	16.98	2/24/2029	—	—
	34,833	41,167 ⁽⁵⁾	21.44	3/3/2030	—	—
	—	125,000 ⁽⁶⁾	16.02	2/3/2031	—	—
	—	125,000 ⁽⁷⁾	9.63	6/9/2031	—	—
Erik Ostrowski	135,625	50,375 ⁽⁹⁾	15.65	1/1/2029	623 ⁽¹⁰⁾	2,399
	44,144	56,756 ⁽⁵⁾	21.44	3/3/2030	—	—
	—	119,100 ⁽⁶⁾	16.02	2/3/2031	—	—
	—	125,000 ⁽⁷⁾	9.63	6/9/2031	—	—

- (1) This column is based on the fair market value of our common stock as of December 31, 2021, the last trading day of 2021, which was \$3.85 per share.
- (2) The shares underlying this stock option vest as follows: 25% of the shares vested on June 13, 2018 and the remainder vest in equal monthly installments until the option is fully vested on June 13, 2021, subject to the continued employment of the executive officer through each such vesting date.
- (3) The shares underlying this stock option vest as follows: 25% of the shares vested on March 16, 2019 and the remainder vest in equal monthly installments until the option is fully vested on March 16, 2022, subject to the continued employment of the executive officer through each such vesting date.
- (4) The shares underlying this stock option vest as follows: 25% of the shares vested on March 5, 2020 and the remainder vest in equal monthly installments until the option is fully vested on March 5, 2023, subject to the continued employment of the executive officer through each such vesting date.
- (5) The shares underlying this stock option vest as follows: 25% of the shares vested on March 4, 2021 and the remainder vest in equal monthly installments until the option is fully vested on March 4, 2024, subject to the continued employment of the executive officer through each such vesting date.
- (6) The shares underlying this stock option vest as follows: 25% of the shares vested on February 4, 2022 and the remainder vest in equal monthly installments until the option is fully vested on February 4, 2025, subject to the continued employment of the executive officer through each such vesting date.
- (7) The shares underlying this stock option vest as follows: 50% of the shares will vest on June 10, 2023 and the remainder will vest on June 10, 2024, subject to the continued employment of the executive officer through each such vesting date.
- (8) The shares underlying this stock option vest as follows: 25% of the shares vested on February 25, 2020 and the remainder vest in equal monthly installments until the option is fully vested on February 25, 2023, subject to the

continued employment of the executive officer through each such vesting date.

- (9) The shares underlying this stock option vest as follows: 25% of the shares vested on January 2, 2020 and the remainder vest in equal monthly installments until the option is fully vested on January 2, 2023, subject to the continued employment of the executive officer through each such vesting date.
- (10) Represents a restricted stock unit award for 2,300 shares, which vests as follows: 25% of the shares vested on January 2, 2020 and the remainder vest in equal monthly installments until the restricted stock unit is fully vested on January 2, 2023, subject to the continued employment of the executive officer through each such vesting date.

Compensation Risk Assessment

We believe that although a portion of the compensation provided to our executive officers and other employees is performance-based, our executive compensation program does not encourage excessive or unnecessary risk taking. Our compensation programs are designed to encourage our executive officers and other employees to remain focused on both short-term and long-term strategic goals, in particular in connection with our pay-for-performance compensation philosophy. As a result, we do not believe that our compensation programs are reasonably likely to have a material adverse effect on us.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Certain Relationships and Transactions

Other than the compensation agreements and other arrangements described under “Executive compensation” and “Director compensation” in this proxy statement and the transactions described below, since January 1, 2020, there has not been and there is not currently proposed, any transaction or series of similar transactions to which we were, or will be, a party in which the amount involved exceeded, or will exceed, \$120,000 (or, if less, 1% of the average of our total assets amounts at December 31, 2020 and 2021) and in which any director, executive officer, holder of five percent or more of any class of our capital stock or any member of the immediate family of, or entities affiliated with, any of the foregoing persons, had, or will have, a direct or indirect material interest.

License Agreements and Related Agreements with University Health Network

Fabry License Agreement

On January 27, 2016, we entered into an option agreement with University Health Network, or UHN, pursuant to which UHN granted us an exclusive option to enter into an exclusive license under certain intellectual property rights related to Fabry disease. On November 4, 2016, we executed our option and entered into an exclusive license agreement with UHN. Under this agreement, UHN granted us an exclusive worldwide license under certain intellectual property rights and a non-exclusive worldwide license under certain know-how, in each case subject to certain retained rights, to develop, commercialize and sell products for use in the treatment of Fabry disease. Under the terms of the agreement, we paid to UHN a one-time upfront fee and are obligated to pay an annual maintenance fee until the first sale of a licensed product in certain markets. We are also required to make payments to UHN in connection with the achievement of certain development and regulatory milestones in an aggregate amount of up to C\$2.45 million, as well as royalties on a country-by-country basis of a low to mid-single digit percentage on annual sales of licensed products and a lower single digit royalty in certain circumstances. Additionally, we will pay a low double digit percentage of all sublicensing revenue. We also made a philanthropic commitment to donate funds to organizations for the benefit of the Canadian Fabry community in an amount equal to a low double digit percentage of our royalty payments and regulatory milestone payments, up to a maximum of C\$500,000 in any calendar year. In connection with this agreement, we have also entered into three separate letter agreements with UHN, dated November 4, 2016, June 2, 2017 and December 11, 2019, pursuant to which we agreed to provide certain funding and costs and expenses associated with a clinical trial conducted by UHN for the treatment of Fabry disease. For the years ended December 31, 2020 and 2021, we paid \$344 and \$209, respectively, to UHN in connection with these agreements, which consists of reimbursable funded study trial costs and license maintenance fees.

Interleukin-12 Agreement

On January 27, 2016, we entered into an exclusive license agreement with UHN pursuant to which UHN granted us an exclusive license to certain intellectual property rights relating to Interleukin-12 proteins, or IL-12. We entered into an amendment to this agreement on September 28, 2017. Under this agreement, we paid an upfront license fee and reimbursement of certain patent expenses, and we are also obligated to pay an annual license fee as well as payments in connection with the achievement of certain performance and development milestones for an aggregate total of up to C\$19.275 million in milestone payments. Additionally, we will pay a low to mid-single digit royalty percentage on annual sales of licensed products, and a low double digit percentage of all sublicensing revenue. For the years ended December 31, 2020 and 2021, we paid \$37 and \$39 to UHN under this agreement, respectively, which consists of license maintenance fees.

In connection with the above agreements, we have also entered into two separate sponsored research agreements with UHN, one in March 2017 and one in July 2017. The March 2017 agreement was amended and restated and subsequently amended in November 2017. Pursuant to each of these sponsored research agreements, we agreed to fund certain research projects related to IL-12 and Fabry disease, including salaries of certain researchers of up to C\$200,000 and C\$164,652 under the March 2017 and July 2017 agreements, respectively.

At the time we entered into each of the above agreements with UHN, other than the letter agreement dated December 11, 2019, UHN was a greater than 5% beneficial owner of our outstanding capital stock. Additionally, Christopher Paige is a senior scientist at UHN and is currently a member of our board of directors. As an inventor of certain of the intellectual property rights related to IL-12 that we license from UHN, Dr. Paige is entitled to a portion of the consideration that we pay to UHN pursuant to the IL-12 license agreement.

Agreements with Stockholders

In connection with our prior preferred stock financings, we entered into investors' rights, voting and right of first refusal and co-sale agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of our preferred stock and certain holders of our common stock. These stockholder agreements terminated upon the closing of our IPO, except for the registration rights granted under our investors' rights agreement.

Indemnification Agreements

We have entered into and in the future plan to enter into agreements to indemnify our directors and executive officers. These agreements, among other things, require us to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding, including any action by or in our right, on account of any services undertaken by such person on behalf of our Company or that person's status as a member of our board of directors or as an officer of the Company to the maximum extent allowed under Delaware law.

Related Person Transaction Policy

Our board of directors reviews and approves transactions with directors, officers and holders of five percent or more of our voting securities and their affiliates, each a related party. We adopted a written related person transaction policy that requires related party transactions to be approved by our Audit Committee. Pursuant to this policy, the Audit Committee has the primary responsibility for reviewing and approving or disapproving "related party transactions," which are transactions between us and related persons in which a related person has or will have a direct or indirect material interest. For purposes of this policy, a related person will be defined as a director, executive officer, nominee for director, or greater than 5% beneficial owner of our common stock, in each case since the beginning of the most recently completed year, and their immediate family members.

PRINCIPAL STOCKHOLDERS

The following table sets forth information, to the extent known by us or ascertainable from public filings, with respect to the beneficial ownership of our common stock as of April 11, 2022 by:

- each of our directors;
- each of our named executive officers;
- all of our directors and current executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own greater than 5.0% of our common stock.

The column entitled “Shares Beneficially Owned” is based on a total of 43,696,470 shares of our common stock outstanding as of April 11, 2022.

Beneficial ownership is determined in accordance with the rules and regulations of the SEC and includes voting or investment power with respect to our common stock. Shares of our common stock subject to options that are currently exercisable or exercisable within 60 days of April 11, 2022 are considered outstanding and beneficially owned by the person holding the options for the purpose of calculating the percentage ownership of that person but not for the purpose of calculating the percentage ownership of any other person. Except as otherwise noted, the persons and entities in this table have sole voting and investing power with respect to all of the shares of our common stock beneficially owned by them, subject to community property laws, where applicable. Except as otherwise indicated in the table below, addresses of named beneficial owners are in care of AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139.

Name and address of beneficial owner	Shares beneficially owned	
	Number	Percentage
5% Stockholders:		
Affiliates of Atlas Venture Fund ⁽¹⁾	4,541,381	10.4 %
BlackRock Inc. ⁽²⁾	3,456,088	7.9 %
Federated Hermes, Inc. ⁽³⁾	2,595,453	5.9 %
GMT Capital Corp. ⁽⁴⁾	2,594,914	5.9 %
Named Executive Officers and Directors:		
Geoff MacKay ⁽⁵⁾	1,446,817	3.3 %
Christopher Mason, MD, PhD, FRCS, FMedSci ⁽⁶⁾	560,576	1.3 %
Erik Ostrowski ⁽⁷⁾	257,295	*
Bruce Booth, DPhil ⁽⁸⁾	41,113	*
Ian T. Clark ⁽⁹⁾	120,135	*
Phillip Donenberg ⁽¹⁰⁾	61,856	*
Gail M. Farfel, PhD ⁽¹¹⁾	32,216	*
Annalisa Jenkins, MBBS, FRCP ⁽¹²⁾	80,624	*
Christopher Paige, PhD ⁽¹³⁾	293,625	*
Philip J. Vickers, PhD ⁽¹⁴⁾	64,656	*
All current executive officers and directors as a group (13 persons)⁽¹⁵⁾	3,550,890	7.7 %

* Represents beneficial ownership of less than one percent.

- (1) Based in part on a Schedule 13D filed with the SEC on July 30, 2019 and a Form 4 filed with the SEC on February 18, 2020. 3,710,052 shares are held directly by Atlas Venture Fund X, L.P. (“Atlas Venture X”), 810,811 shares are held directly by Atlas Venture Opportunity Fund I, L.P. (“Atlas Venture Opportunity”) and 20,518 shares are held directly by Atlas Venture Associates X, L.P. (“AVA X LP”). AVA X LP is the general partner of Atlas Venture X, and Atlas Venture Associates X, LLC (“AVA X LLC”) is the general partner of AVA X LP. Atlas Venture Associates Opportunity I, L.P. (“AVA Opportunity LP”) is the general partner of Atlas Venture Opportunity and Atlas Venture Associates Opportunity I, LLC (“AVA Opportunity LLC”) is the general partner of AVA Opportunity LP. Bruce Booth is a member of AVA X LLC and AVA Opportunity LLC and a member of our board of directors. Dr. Booth disclaims

beneficial ownership of such shares, except to the extent of his proportionate pecuniary interest therein, if any. The address for Atlas Venture X is 300 Technology Square, 8th Floor, Cambridge, MA 02139.

- (2) Based solely on a Schedule 13G/A filed with the SEC on February 3, 2022. The report was filed by Blackrock, Inc. on behalf of itself and its wholly owned subsidiaries, BlackRock Advisors, LLC; BlackRock Investment Management (UK) Limited; BlackRock Asset Management Canada Limited; BlackRock Fund Advisors; BlackRock Asset Management Ireland Limited; BlackRock Institutional Trust Company, National Association; BlackRock Financial Management, Inc.; BlackRock Japan Co., Ltd.; and BlackRock Investment Management, LLC. The address for these entities is 55 East 52nd Street, New York, NY 10055.
- (3) Based solely on a Schedule 13G filed with the SEC on February 14, 2022. The report was filed by Federated Hermes, Inc. on behalf of itself as parent holding company and Federated Hermes Equity Funds; Federated Hermes Insurance Series; Federated Hermes MDT Series; Federated Equity Management Company of Pennsylvania; Federated Global Investment Management Corp.; Federated Investment Counseling; Federated MDTA LLC; FII Holdings, Inc.; Voting Shares Irrevocable Trust; Thomas R. Donahue; Rhodora J. Donahue; and J. Christopher Donahue. The address for these entities is 1001 Liberty Avenue, Pittsburgh, PA 15222.
- (4) Based solely on a Schedule 13G filed with the SEC on February 10, 2022. The report was filed by GMT Capital Corp. on behalf of itself and Bay Resource Partners, L.P.; Bay II Resource Partners, L.P.; Bay Resource Partners Offshore Master Fund, L.P.; Thomas E. Claugus; and certain sub-advisory and separate account clients advised by GMT. The address for these entities is 2300 Windy Ridge Parkway, Ste. 550 South, Atlanta, GA 30339.
- (5) Consists of (i) 245,123 shares of common stock, (ii) 72,604 shares of common stock held by Mac MacKay, (iii) 72,604 shares of common stock held by Kali MacKay, (iv) 200,000 shares held by the Geoff R. MacKay Irrevocable Trust, and (v) 856,486 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022. Mr. MacKay is the father of Mac MacKay and Kali MacKay. Mr. MacKay may be deemed to have voting and investment power over shares held by Mac MacKay and Kali MacKay.
- (6) Consists of (i) 284,365 shares of common stock and (ii) 276,211 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (7) Consists of (i) 1,868 shares of common stock, (ii) 96 shares of common stock issuable upon the vesting of a restricted stock unit within 60 days of April 11, 2022 and (iii) 255,331 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (8) Consists of 41,113 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (9) Consists of 120,135 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (10) Consists of (i) 2,000 shares of common stock and (ii) 59,856 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (11) Consists of 32,216 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (12) Consists of 80,624 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (13) Consists of (i) 252,512 shares of common stock and (ii) 41,113 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (14) Consists of (i) 4,800 shares of common stock and (ii) 59,856 shares of common stock issuable upon exercise of options within 60 days of April 11, 2022.
- (15) Includes an aggregate of 2,263,672 shares issuable upon exercise of stock options and a restricted stock unit within 60 days of April 11, 2022 held by our current executive officers and directors as a group.

REPORT OF THE AUDIT COMMITTEE

The Audit Committee is appointed by the board of directors to assist the board of directors in fulfilling its oversight responsibilities with respect to (1) the integrity of AVROBIO's consolidated financial statements and financial reporting process and systems of internal controls regarding finance, accounting, and compliance with legal and regulatory requirements, (2) the qualifications, independence, and performance of AVROBIO's independent registered public accounting firm, (3) the performance of AVROBIO's internal audit function, if any, and (4) other matters as set forth in the charter of the Audit Committee approved by the board of directors.

Management is responsible for the preparation of AVROBIO's consolidated financial statements and the financial reporting process, including its system of internal control over financial reporting and its disclosure controls and procedures. The independent registered public accounting firm is responsible for performing an audit of AVROBIO's consolidated financial statements in accordance with the standards of the Public Company Accounting Oversight Board (PCAOB) and issuing a report thereon. The Audit Committee's responsibility is to monitor and oversee these processes.

In connection with these responsibilities, the Audit Committee reviewed and discussed with management and the independent registered public accounting firm the audited consolidated financial statements of AVROBIO for the fiscal year ended December 31, 2021. The Audit Committee also discussed with the independent registered public accounting firm the matters required to be discussed by the applicable requirements of the PCAOB and the SEC. In addition, the Audit Committee received written communications from the independent registered public accounting firm confirming their independence as required by the applicable requirements of the PCAOB and has discussed with the independent registered public accounting firm their independence.

Based on the reviews and discussions referred to above, the Audit Committee recommended to the board of directors that the audited consolidated financial statements of AVROBIO be included in AVROBIO's Annual Report on Form 10-K for the fiscal year ended December 31, 2021, that was filed with the SEC. The information contained in this report shall not be deemed to be (1) "soliciting material," (2) "filed" with the SEC, (3) subject to Regulations 14A or 14C of the Exchange Act, or (4) subject to the liabilities of Section 18 of the Exchange Act. This report shall not be deemed incorporated by reference into any of our other filings under the Exchange Act or the Securities Act, except to the extent that we specifically incorporate it by reference into such filing.

THE AUDIT COMMITTEE OF THE BOARD
OF DIRECTORS OF AVROBIO, INC.
Phillip Donenberg, Chairperson
Annalisa Jenkins, M.B.B.S., F.R.C.P.
Christopher Paige, Ph.D.

April 27, 2022

HOUSEHOLDING

Some banks, brokers and other nominee record holders may be participating in the practice of “householding” proxy statements and annual reports. This means that only one copy of our documents, including the annual report to stockholders and proxy statement, may have been sent to multiple stockholders in your household. We will promptly deliver a separate copy of either document to you upon written or oral request to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary, telephone: 617-752-7011. If you want to receive separate copies of the proxy statement or annual report to stockholders in the future, or if you are receiving multiple copies and would like to receive only one copy per household, you should contact your bank, broker or other nominee record holder, or you may contact us at the above address and phone number.

STOCKHOLDER PROPOSALS

A stockholder who would like to have a proposal considered for inclusion in our 2023 proxy statement must submit the proposal in accordance with the procedures outlined in Rule 14a-8 of the Exchange Act so that it is received by us no later than December 22, 2022. However, if the date of the 2023 Annual Meeting of Stockholders is changed by more than 30 days from the date of the previous year's meeting, then the deadline is a reasonable time before we begin to print and send our proxy statement for the 2023 Annual Meeting of Stockholders. If that happens, we will publicly announce the deadline for submitting a proposal in a press release or in a document filed with the SEC. SEC rules set standards for eligibility and specify the types of stockholder proposals that may be excluded from a proxy statement. Stockholder proposals should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

If a stockholder wishes to propose a nomination of persons for election to our board of directors or present a proposal at an annual meeting but does not wish to have the proposal considered for inclusion in our proxy statement and proxy card, our bylaws establish an advance notice procedure for such nominations and proposals. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors or by a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has delivered timely notice in proper form to our Corporate Secretary of the stockholder's intention to bring such business before the meeting.

The required notice must be in writing and received by our Corporate Secretary at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year's annual meeting. However, in the event that the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, or if no annual meeting were held in the preceding year, a stockholder's notice must be so received no earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the tenth day following the day on which public announcement of the date of such meeting is first made. For stockholder proposals to be brought before the 2023 Annual Meeting of Stockholders, the required notice must be received by our Corporate Secretary at our principal executive offices no earlier than February 8, 2023 and no later than March 10, 2023. Stockholder proposals and the required notice should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

To comply with the universal proxy rules (once effective), stockholders who intend to solicit proxies in support of director nominees other than the Company's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than April 7, 2023. Stockholder proposals and the required notice should be addressed to AVROBIO, Inc., One Kendall Square, Building 300, Suite 201, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

OTHER MATTERS

Our board of directors does not know of any other matters to be brought before the Annual Meeting. If any other matters not mentioned in this proxy statement are properly brought before the meeting, the individuals named in the enclosed proxy intend to use their discretionary voting authority under the proxy to vote the proxy in accordance with their best judgment on those matters.

AVROBIO, INC.

2018 STOCK OPTION AND INCENTIVE PLAN

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the AVROBIO, Inc. 2018 Stock Option and Incentive Plan (the “Plan”). The purpose of the Plan is to encourage and enable the officers, employees, Non-Employee Directors and Consultants of AVROBIO, Inc. (the “Company”) and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its businesses to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company’s welfare will assure a closer identification of their interests with those of the Company and its stockholders, thereby stimulating their efforts on the Company’s behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

“Act” means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

“Administrator” means either the Board or the compensation committee of the Board or a similar committee performing the functions of the compensation committee and which is comprised of not less than two Non-Employee Directors who are independent.

“Award” or “Awards,” except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Units, Restricted Stock Awards, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights.

“Award Certificate” means a written or electronic document setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Certificate is subject to the terms and conditions of the Plan.

“Board” means the Board of Directors of the Company.

“Cash-Based Award” means an Award entitling the recipient to receive a cash-denominated payment.

“Code” means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

“Consultant” means any natural person that provides bona fide services to the Company, and such services are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company’s securities.

“Dividend Equivalent Right” means an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the grantee.

“Effective Date” means the date on which the Plan becomes effective as set forth in Section 19.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

“Fair Market Value” of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is admitted to quotation on the National Association of Securities Dealers Automated Quotation System, Nasdaq Global Market, The New York Stock Exchange or another national securities exchange, the determination shall be made by reference to the Stock’s closing price on such exchange. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price; provided further, however, that if the date for which Fair Market Value is determined is the Registration Date,

the Fair Market Value shall be the “Price to the Public” (or equivalent) set forth on the cover page for the final prospectus relating to the Company’s Initial Public Offering.

“*Incentive Stock Option*” means any Stock Option designated and qualified as an “incentive stock option” as defined in Section 422 of the Code.

“*Initial Public Offering*” means the first underwritten, firm commitment public offering pursuant to an effective registration statement under the Act covering the offer and sale by the Company of its equity securities, or such other event as a result of or following which the Stock shall be publicly held.

“*Non-Employee Director*” means a member of the Board who is not also an employee of the Company or any Subsidiary.

“*Non-Qualified Stock Option*” means any Stock Option that is not an Incentive Stock Option.

“*Option*” or “*Stock Option*” means any option to purchase shares of Stock granted pursuant to Section 5.

“*Registration Date*” means the date upon which the registration statement on Form S-1 that is filed by the Company with respect to the Initial Public Offering is declared effective by the Securities and Exchange Commission.

“*Restricted Shares*” means the shares of Stock underlying a Restricted Stock Award that remain subject to a risk of forfeiture or the Company’s right of repurchase.

“*Restricted Stock Award*” means an Award of Restricted Shares subject to such restrictions and conditions as the Administrator may determine at the time of grant.

“*Restricted Stock Units*” means an Award of stock units subject to such restrictions and conditions as the Administrator may determine at the time of grant.

“*Sale Event*” shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation pursuant to which the holders of the Company’s outstanding voting power and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company’s outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

“*Sale Price*” means the value as determined by the Administrator of the consideration payable, or otherwise to be received by stockholders, per share of Stock pursuant to a Sale Event.

“*Section 409A*” means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

“*Service Relationship*” means any relationship as a full-time employee, part-time employee, director or other advisor (including Consultants) of the Company or any Subsidiary or any successor entity (e.g., a Service Relationship shall be deemed to continue without interruption in the event an individual’s status changes from full-time employee to part-time employee or Consultant).

“*Stock*” means the Common Stock, par value \$0.0001 per share, of the Company, subject to adjustments pursuant to Section 3.

“*Stock Appreciation Right*” means an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Certificate) having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

“*Subsidiary*” means any corporation or other entity (other than the Company) in which the Company has at least a 50 percent interest, either directly or indirectly.

“*Ten Percent Owner*” means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation.

“*Unrestricted Stock Award*” means an Award of shares of Stock free of any restrictions.

SECTION 2. ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a) Administration of Plan. The Plan shall be administered by the Administrator.

(b) Powers of Administrator. The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Restricted Stock Units, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of shares of Stock to be covered by any Award;

(iv) to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the forms of Award Certificates;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award;

(vi) subject to the provisions of Section 5(c), to extend at any time the period in which Stock Options may be exercised; and

(vii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan grantees.

(c) Delegation of Authority to Grant Awards. Subject to applicable law, the Administrator, in its discretion, may delegate to a committee consisting of one or more officers of the Company including the Chief Executive Officer of the Company all or part of the Administrator’s authority and duties with respect to the granting of Awards to individuals who are (i) not subject to the reporting and other provisions of Section 16 of the Exchange Act and (ii) not members of the delegated committee. Any such delegation by the Administrator shall include a limitation as to the amount of Stock underlying Awards that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator’s delegate or delegates that were consistent with the terms of the Plan.

(d) Award Certificate. Awards under the Plan shall be evidenced by Award Certificates that set forth the terms, conditions and limitations for each Award which may include, without limitation, the term of an Award and the provisions applicable in the event employment or service terminates.

(e) Indemnification. Neither the Board nor the Administrator, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Administrator (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys’ fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company’s articles or bylaws or any directors’ and officers’ liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(f) Foreign Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and its Subsidiaries operate or have employees or other individuals eligible for Awards, the Administrator, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries shall be covered by the Plan; (ii) determine which individuals outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Administrator determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to this Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitations contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Administrator determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals. Notwithstanding the foregoing, the Administrator may not take any actions hereunder, and no Awards shall be granted, that would violate the Exchange Act or any other applicable United States securities law, the Code, or any other applicable United States governing statute or law.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 616,300 shares (the "Initial Limit"), subject to adjustment as provided in Section 3(c), plus on January 1, 2019 and each January 1 thereafter, the number of shares of Stock reserved and available for issuance under the Plan shall be cumulatively increased by 4 percent of the number of shares of Stock issued and outstanding on the immediately preceding December 31 or such lesser number of shares as determined by the Administrator (the "Annual Increase"). Subject to such overall limitation, the maximum aggregate number of shares of Stock that may be issued in the form of Incentive Stock Options shall not exceed the Initial Limit cumulatively increased on January 1, 2019 and on each January 1 thereafter by the lesser of the Annual Increase for such year or 1,785,100 shares of Stock, subject in all cases to adjustment as provided in Section 3(c). For purposes of this limitation, the shares of Stock underlying any Awards under the Plan and under the Company's Amended and Restated 2015 Stock Option and Grant Plan that are forfeited, canceled, held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) shall be added back to the shares of Stock available for issuance under the Plan. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

(b) Maximum Awards to Non-Employee Directors. Notwithstanding anything to the contrary in this Plan, the value of all Awards awarded under this Plan and all other cash compensation paid by the Company to any Non-Employee Director in any calendar year shall not exceed \$1,000,000. For the purpose of this limitation, the value of any Award shall be its grant date fair value, as determined in accordance with ASC 718 or successor provision but excluding the impact of estimated forfeitures related to service-based vesting provisions.

(c) Changes in Stock. Subject to Section 3(d) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, including the maximum number of shares that may be issued in the form of Incentive Stock Options, (ii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iii) the repurchase price, if any, per share subject to each outstanding Restricted Stock Award, and (iv) the exercise price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The Administrator shall also make equitable or proportionate adjustments in the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration cash dividends paid other than in the ordinary course or any other extraordinary corporate event. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

(d) Mergers and Other Transactions. In the case of and subject to the consummation of a Sale Event, the parties thereto may cause the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree. To the extent the parties to such Sale Event do not provide for the assumption, continuation or substitution of Awards, upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate. In such case, except as may be otherwise provided in the relevant Award Certificate, all Options and Stock Appreciation Rights that are not exercisable immediately prior to the effective time of the Sale Event shall become fully exercisable as of the effective time of the Sale Event, all other Awards with time-based vesting, conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the Sale Event, and all Awards with conditions and restrictions relating to the attainment of performance goals may become vested and nonforfeitable in connection with a Sale Event in the Administrator's discretion or to the extent specified in the relevant Award Certificate. In the event of such termination, (i) the Company shall have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the Sale Price multiplied by the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (to the extent then exercisable at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights (provided that, in the case of an Option or Stock Appreciation Right with an exercise price equal to or less than the Sale Price, such Option or Stock Appreciation Right shall be cancelled for no consideration); or (ii) each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights (to the extent then exercisable) held by such grantee. The Company shall also have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding other Awards in an amount equal to the Sale Price multiplied by the number of vested shares of Stock under such Awards.

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, Non-Employee Directors and Consultants of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

SECTION 5. STOCK OPTIONS

(a) Award of Stock Options. The Administrator may grant Stock Options under the Plan. Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a "subsidiary corporation" within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

Stock Options granted pursuant to this Section 5 shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee's election, subject to such terms and conditions as the Administrator may establish.

(b) Exercise Price. The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5 shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date. Notwithstanding the foregoing, Stock Options may be granted with an exercise price per share that is less than 100 percent of the Fair Market Value on the date of grant pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code.

(c) Option Term. The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the date of grant.

(d) Exercisability; Rights of a Stockholder. Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date. The Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(e) Method of Exercise. Stock Options may be exercised in whole or in part, by giving written or electronic notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods except to the extent otherwise provided in the Option Award Certificate:

(i) In cash, by certified or bank check or other instrument acceptable to the Administrator;

(ii) Through the delivery (or attestation to the ownership following such procedures as the Company may prescribe) of shares of Stock that are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date;

(iii) By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Company shall prescribe as a condition of such payment procedure; or

(iv) With respect to Stock Options that are not Incentive Stock Options, by a “net exercise” arrangement pursuant to which the Company will reduce the number of shares of Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. The transfer to the optionee on the records of the Company or of the transfer agent of the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Option Award Certificate or applicable provisions of laws (including the satisfaction of any withholding taxes that the Company is obligated to withhold with respect to the optionee). In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of attested shares. In the event that the Company establishes, for itself or using the services of a third party, an automated system for the exercise of Stock Options, such as a system using an internet website or interactive voice response, then the paperless exercise of Stock Options may be permitted through the use of such an automated system.

(f) Annual Limit on Incentive Stock Options. To the extent required for “incentive stock option” treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed \$100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

SECTION 6. STOCK APPRECIATION RIGHTS

(a) Award of Stock Appreciation Rights. The Administrator may grant Stock Appreciation Rights under the Plan. A Stock Appreciation Right is an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Certificate) having a value equal to the excess of the Fair Market Value of a share of Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

(b) Exercise Price of Stock Appreciation Rights. The exercise price of a Stock Appreciation Right shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant.

(c) Grant and Exercise of Stock Appreciation Rights. Stock Appreciation Rights may be granted by the Administrator independently of any Stock Option granted pursuant to Section 5 of the Plan.

(d) Terms and Conditions of Stock Appreciation Rights. Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined on the date of grant by the Administrator. The term of a Stock Appreciation Right may not exceed ten years. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

SECTION 7. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Administrator may grant Restricted Stock Awards under the Plan. A Restricted Stock Award is any Award of Restricted Shares subject to such restrictions and conditions as the Administrator

may determine at the time of grant. Conditions may be based on continuing employment (or other Service Relationship) and/or achievement of pre-established performance goals and objectives.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Shares and receipt of dividends; provided that if the lapse of restrictions with respect to the Restricted Stock Award is tied to the attainment of performance goals, any dividends paid by the Company during the performance period shall accrue and shall not be paid to the grantee until and to the extent the performance goals are met with respect to the Restricted Stock Award. Unless the Administrator shall otherwise determine, (i) uncertificated Restricted Shares shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Shares are vested as provided in Section 7(d) below, and (ii) certificated Restricted Shares shall remain in the possession of the Company until such Restricted Shares are vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company such instruments of transfer as the Administrator may prescribe.

(c) Restrictions. Restricted Shares may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award Certificate. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 15 below, in writing after the Award is issued, if a grantee's employment (or other service relationship) with the Company and its Subsidiaries terminates for any reason, any Restricted Shares that have not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other service relationship), and thereafter shall cease to represent any ownership of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of Restricted Shares that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

(d) Vesting of Restricted Shares. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Shares and the Company's right of repurchase or forfeiture shall lapse. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Shares and shall be deemed "vested."

SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Administrator may grant Restricted Stock Units under the Plan. A Restricted Stock Unit is an Award of stock units that may be settled in shares of Stock (or cash, to the extent explicitly provided for in the Award Certificate) upon the satisfaction of such restrictions and conditions at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. Except in the case of Restricted Stock Units with a deferred settlement date that complies with Section 409A, at the end of the vesting period, the Restricted Stock Units, to the extent vested, shall be settled in the form of shares of Stock. Restricted Stock Units with deferred settlement dates are subject to Section 409A and shall contain such additional terms and conditions as the Administrator shall determine in its sole discretion in order to comply with the requirements of Section 409A.

(b) Election to Receive Restricted Stock Units in Lieu of Compensation. The Administrator may, in its sole discretion, permit a grantee to elect to receive a portion of future cash compensation otherwise due to such grantee in the form of an award of Restricted Stock Units. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with Section 409A and such other rules and procedures established by the Administrator. Any such future cash compensation that the grantee elects to defer shall be converted to a fixed number of Restricted Stock Units based on the Fair Market Value of Stock on the date the compensation would otherwise have been paid to the grantee if such payment had not been deferred as provided herein. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate. Any Restricted Stock Units that are elected to be received in lieu of cash compensation shall be fully vested, unless otherwise provided in the Award Certificate.

(c) Rights as a Stockholder. A grantee shall have the rights as a stockholder only as to shares of Stock acquired by the grantee upon settlement of Restricted Stock Units; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the stock units underlying his Restricted Stock Units, subject to the provisions of Section 11 and such terms and conditions as the Administrator may determine.

(d) Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 15 below, in writing after the Award is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 9. UNRESTRICTED STOCK AWARDS

Grant or Sale of Unrestricted Stock. The Administrator may grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award under the Plan. An Unrestricted Stock Award is an Award pursuant to which the grantee may receive shares of Stock free of any restrictions under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 10. CASH-BASED AWARDS

Grant of Cash-Based Awards. The Administrator may grant Cash-Based Awards under the Plan. A Cash-Based Award is an Award that entitles the grantee to a payment in cash upon the attainment of specified performance goals. The Administrator shall determine the maximum duration of the Cash-Based Award, the amount of cash to which the Cash-Based Award pertains, the conditions upon which the Cash-Based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-Based Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-Based Award shall be made in accordance with the terms of the Award and may be made in cash.

SECTION 11. DIVIDEND EQUIVALENT RIGHTS

(a) Dividend Equivalent Rights. The Administrator may grant Dividend Equivalent Rights under the Plan. A Dividend Equivalent Right is an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other Award to which it relates) if such shares had been issued to the grantee. A Dividend Equivalent Right may be granted hereunder to any grantee as a component of an award of Restricted Stock Units or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the Award Certificate. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid currently or may be deemed to be reinvested in additional shares of Stock, which may thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of an Award of Restricted Stock Units shall provide that such Dividend Equivalent Right shall be settled only upon settlement or payment of, or lapse of restrictions on, such other Award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other Award.

(b) Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 15 below, in writing after the Award is issued, a grantee's rights in all Dividend Equivalent Rights shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 12. TRANSFERABILITY OF AWARDS

(a) Transferability. Except as provided in Section 12(b) below, during a grantee's lifetime, his or her Awards shall be exercisable only by the grantee, or by the grantee's legal representative or guardian in the event of the grantee's incapacity. No Awards shall be sold, assigned, transferred or otherwise encumbered or disposed of by a grantee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order. No Awards shall be subject, in whole or in part, to attachment, execution, or levy of any kind, and any purported transfer in violation hereof shall be null and void.

(b) Administrator Action. Notwithstanding Section 12(a), the Administrator, in its discretion, may provide either in the Award Certificate regarding a given Award or by subsequent written approval that the grantee (who is an employee or director) may transfer his or her Non-Qualified Stock Options to his or her immediate family members, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award. In no event may an Award be transferred by a grantee for value.

(c) Family Member. For purposes of Section 12(b), “family member” shall mean a grantee’s child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the grantee’s household (other than a tenant of the grantee), a trust in which these persons (or the grantee) have more than 50 percent of the beneficial interest, a foundation in which these persons (or the grantee) control the management of assets, and any other entity in which these persons (or the grantee) own more than 50 percent of the voting interests.

(d) Designation of Beneficiary. To the extent permitted by the Company, each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award or receive any payment under any Award payable on or after the grantee’s death. Any such designation shall be on a form provided for that purpose by the Administrator and shall not be effective until received by the Administrator. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee’s estate.

SECTION 13. TAX WITHHOLDING

(a) Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the grantee for Federal income tax purposes, pay to the Company, or make arrangements satisfactory to the Administrator regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company’s obligation to deliver evidence of book entry (or stock certificates) to any grantee is subject to and conditioned on tax withholding obligations being satisfied by the grantee.

(b) Payment in Stock. Subject to approval by the Administrator, a grantee may elect to have the Company’s required tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due; provided, however, that the amount withheld does not exceed the maximum statutory tax rate or such lesser amount as is necessary to avoid liability accounting treatment. The Administrator may also require Awards to be subject to mandatory share withholding up to the required withholding amount. For purposes of share withholding, the Fair Market Value of withheld shares shall be determined in the same manner as the value of Stock includible in income of the participants. The required tax withholding obligation may also be satisfied, in whole or in part, by an arrangement whereby a certain number of shares of Stock issued pursuant to any Award are immediately sold and proceeds from such sale are remitted to the Company in an amount that would satisfy the withholding amount due.

SECTION 14. SECTION 409A AWARDS

To the extent that any Award is determined to constitute “nonqualified deferred compensation” within the meaning of Section 409A (a “409A Award”), the Award shall be subject to such additional rules and requirements as specified by the Administrator from time to time in order to comply with Section 409A. In this regard, if any amount under a 409A Award is payable upon a “separation from service” (within the meaning of Section 409A) to a grantee who is then considered a “specified employee” (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee’s separation from service, or (ii) the grantee’s death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. Further, the settlement of any 409A Award may not be accelerated except to the extent permitted by Section 409A.

SECTION 15. TERMINATION OF EMPLOYMENT, TRANSFER, LEAVE OF ABSENCE, ETC.

(a) Termination of Employment. If the grantee’s Service Relationship is with a Subsidiary and such Subsidiary ceases to be a Subsidiary, the grantee shall be deemed to have terminated his or her Service Relationship for purposes of the Plan.

(b) For purposes of the Plan, the following events shall not be deemed a termination of employment:

(i) a transfer to the employment of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or

(ii) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee’s right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

SECTION 16. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the holder's consent. Except as provided in Section 3(c) or 3(d), without prior stockholder approval, in no event may the Administrator exercise its discretion to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and re-grants or cancellation of Stock Options or Stock Appreciation Rights in exchange for cash or other Awards. To the extent required under the rules of any securities exchange or market system on which the Stock is listed, to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 16 shall limit the Administrator's authority to take any action permitted pursuant to Section 3(c) or 3(d).

SECTION 17. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

SECTION 18. GENERAL PROVISIONS

(a) No Distribution. The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

(b) Issuance of Stock. To the extent certificated, stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any evidence of book entry or certificates evidencing shares of Stock pursuant to the exercise or settlement of any Award, unless and until the Administrator has determined, with advice of counsel (to the extent the Administrator deems such advice necessary or advisable), that the issuance and delivery is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. Any Stock issued pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate or notations on any book entry to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Administrator may require that an individual make such reasonable covenants, agreements, and representations as the Administrator, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Administrator.

(c) Stockholder Rights. Until Stock is deemed delivered in accordance with Section 18(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

(d) Other Compensation Arrangements; No Employment Rights. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not confer upon any employee any right to continued employment with the Company or any Subsidiary.

(e) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policies and procedures, as in effect from time to time.

(f) Clawback Policy. Awards under the Plan shall be subject to the Company's clawback policy, as in effect from time to time.

SECTION 19. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon the date immediately preceding the Registration Date following stockholder approval in accordance with applicable state law, the Company's bylaws and articles of incorporation, and applicable stock exchange rules. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the Effective Date and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of the date the Plan is approved by the Board.

SECTION 20. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of Delaware, applied without regard to conflict of law principles.

DATE APPROVED BY BOARD OF DIRECTORS: JUNE 1, 2018

DATE APPROVED BY STOCKHOLDERS: JUNE 7, 2018

FIRST AMENDMENT TO THE AVROBIO, INC.

2018 STOCK OPTION AND INCENTIVE PLAN

This First Amendment (this “Amendment”) to the AVROBIO, Inc. 2018 Stock Option and Incentive Plan (the “Plan”), of AVROBIO, Inc. (the “Company”) is effective as of the date of approval by the Company’s stockholders (the “Effective Date”). Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such terms in the Plan.

As of the Effective Date, the Plan shall be amended as follows:

1. Section 3(a) of the Plan is hereby deleted in its entirety and replaced with the following:

(a) Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 6,349,279 shares (the “Initial Limit”), subject to adjustment as provided in Section 3(c), plus on each of January 1, 2021 and January 1, 2022, the number of shares of Stock reserved and available for issuance under the Plan shall be cumulatively increased by 4 percent of the number of shares of Stock issued and outstanding on the immediately preceding December 31 or such lesser number of shares as determined by the Administrator (the “Annual Increase”). For purposes of this limitation, the shares of Stock underlying any Awards under the Plan and under the Company’s Amended and Restated 2015 Stock Option and Grant Plan that are forfeited, canceled, held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) (including, for the avoidance of doubt, any such shares of Stock that are subject to such treatment between April 16, 2020 and the Effective Date) shall be added back to the shares of Stock available for issuance under the Plan. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitation, the maximum aggregate number of shares of Stock that may be issued in the form of Incentive Stock Options shall not exceed the Initial Limit cumulatively increased on each of January 1, 2021 and January 1, 2022 by the lesser of the Annual Increase for such year or 19,047,837 shares of Stock, subject in all cases to adjustment as provided in Section 3(c). Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

2. Except as expressly amended by this Amendment, the Plan shall continue in full force and effect in accordance with the provisions thereof.

[signature page to follow]

IN WITNESS WHEREOF, the Company has caused this Amendment to be duly executed as of the date first written above.

AVROBIO, INC.

By: /s/ Geoff MacKay
Name: Geoff MacKay
Title: CEO and President

SECOND AMENDMENT TO THE AVROBIO, INC.

2018 STOCK OPTION AND INCENTIVE PLAN

This Second Amendment (this “Amendment”) to the AVROBIO, Inc. 2018 Stock Option and Incentive Plan (the “Plan”), of AVROBIO, Inc. (the “Company”) is effective as of the date of approval by the Company’s stockholders (the “Effective Date”). Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such terms in the Plan.

As of the Effective Date, the Plan shall be amended as follows:

1. Section 3(a) of the Plan is hereby deleted in its entirety and replaced with the following:

(a) Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 13,486,099 shares, subject to adjustment as provided in Section 3(c). For purposes of this limitation, the shares of Stock underlying any Awards under the Plan and under the Company’s Amended and Restated 2015 Stock Option and Grant Plan that are forfeited, canceled, held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) (including, for the avoidance of doubt, any such shares of Stock that are subject to such treatment between March 2, 2022 and the Effective Date) shall be added back to the shares of Stock available for issuance under the Plan. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitation, the maximum aggregate number of shares of Stock that may be issued in the form of Incentive Stock Options shall not exceed 40,458,297, subject in all cases to adjustment as provided in Section 3(c). Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

2. A new Section 3(e) of the Plan is hereby inserted as follows:

(e) Minimum Vesting. Subject to Sections 2(b)(v) and 3(d), any Awards that settle in Stock (other than such Awards representing a maximum of five percent (5%) of the Stock reserved for issuance under this Plan, subject to adjustment as provided in Section 3(c)) shall be granted subject to a minimum time-vesting period of at least twelve (12) months, such that no such Awards shall vest prior to the first anniversary of the applicable grant date.

3. The second sentence of Section 19 of the Plan is hereby deleted in its entirety and replaced with the following:

No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the Effective Date or the effective date of stockholder approval of any amendment to add shares to the Plan, and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of the date the Plan (or most recent amendment to add shares to the Plan) is approved by the Board.

4. Except as expressly amended by this Amendment, the Plan shall continue in full force and effect in accordance with the provisions thereof.

[signature page to follow]

IN WITNESS WHEREOF, the Company has caused this Amendment to be duly executed as of March 2, 2022.

AVROBIO, INC.

By: /s/ Geoff MacKay
Name: Geoff MacKay
Title: CEO and President