



RUBIUS THERAPEUTICS, INC.
399 Binney Street, Suite 300
Cambridge, Massachusetts 02139
NOTICE OF 2022 ANNUAL MEETING OF STOCKHOLDERS
To be held May 12, 2022

Notice is hereby given that the 2022 Annual Meeting of Stockholders, or Annual Meeting, of Rubius Therapeutics, Inc., will be held on May 12, 2022 at 9:00 a.m. Eastern Time. The Annual Meeting will be completely virtual. You may attend the meeting, submit questions, and vote your shares electronically during the meeting via live webcast by visiting www.virtualshareholdermeeting.com/RUBY2022. 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 PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022;
3. To approve, on a non-binding, advisory basis, the compensation of our named executive officers for the year ended December 31, 2021 (say-on-pay vote);
4. To consider and act upon a non-binding, advisory vote on the frequency of future advisory votes to approve the compensation of our named executive officers; and
5. 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 Rubius Therapeutics, Inc. stockholders of record at the close of business on March 15, 2022, will be entitled to vote at the Annual Meeting and any adjournment or postponement thereof.

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 Annual Report on Form 10-K for the fiscal year ended December 31, 2021, or 2021 Annual Report. The Notice contains instructions on how to access those documents and to cast your vote via the Internet or by telephone. 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 the information they need 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 meeting online, 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 meeting online, by submitting your proxy via the Internet at the address listed on the Notice, by telephone as instructed on the Notice or, if you requested copies of the proxy materials by mail, by signing, dating and returning the proxy card.

By order of the board of directors,

Pablo J. Cagnoni
President, Chief Executive Officer and Director

Cambridge, Massachusetts
March 30, 2022

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RUBIUS THERAPEUTICS, INC.
399 Binney Street, Suite 300
Cambridge, Massachusetts 02139
PROXY STATEMENT
FOR THE 2022 ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD MAY 12, 2022

This proxy statement contains information about the 2022 Annual Meeting of Stockholders, or the Annual Meeting, of Rubius Therapeutics, Inc., which will be held on May 12, 2022 at 9:00 a.m. Eastern Time. The board of directors of Rubius Therapeutics, Inc. is using this proxy statement to solicit proxies for use at the Annual Meeting. In this proxy statement, the terms “Rubius,” “the company,” “we,” “us,” and “our” refer to Rubius Therapeutics, Inc. The mailing address of our principal executive offices is Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, 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 Corporate Secretary written notice to that effect.

We made this proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2021 available to stockholders on March 30, 2022.

**Important Notice Regarding the Availability of Proxy Materials for
the Annual Meeting of Stockholders to be Held on May 12, 2022:**
This proxy statement and our Annual Report on Form 10-K are
available for viewing, printing and downloading at www.proxyvote.com.

A copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, as filed with the Securities and Exchange Commission, or SEC, on February 25, 2022, except for exhibits, will be furnished without charge to any stockholder upon written request to Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, 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.

RUBIUS THERAPEUTICS, 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 March 30, 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, bank or other nominee), a voting instruction form, and the Annual Report on Form 10-K for the fiscal year ended December 31, 2021, 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 Securities and Exchange Commission, or 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 as of the record date starting on or about March 30, 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 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 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 March 15, 2022.

How many votes can be cast by all stockholders?

There were 90,186,626 shares of our common stock, par value \$0.001 per share, outstanding on March 15, 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 March 15, 2022.

How do I vote?

By proxy

Even if you plan to attend the Annual Meeting online, you are encouraged to vote ahead of the meeting by proxy. You can vote by proxy over the Internet or by telephone by following the instructions provided in the Notice, or, if you requested printed copies of the proxy materials by mail, you can vote by mailing your proxy as described in the proxy materials. In order to be counted, proxies submitted by Internet or telephone must be received by the cutoff time of 11:59 p.m. Eastern Time on May 11, 2022. Proxies submitted by mail must be received before the start of the Annual Meeting.

If you are a beneficial owner of shares held in “street name” by your broker, bank or other nominee, you should have received a voting instruction form with these proxy materials from your broker, bank or other nominee rather than from us. The voting deadlines and availability of telephone and Internet voting for beneficial owners of shares will depend on the voting processes of the broker, bank or other nominee that holds your shares. **Therefore, we urge you to carefully review and follow the voting instruction form and any other materials that you receive from that organization. If you hold your shares in multiple accounts, you should vote your shares as described in each set of proxy materials you receive.**

If you complete and submit your proxy before the Annual Meeting, the persons named in your proxy 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 in your proxy 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 such proxy, 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.

By attending the Annual Meeting online

If you are a stockholder of record as of March 15, 2022, you may vote online by attending the virtual Annual Meeting and following the instructions posted at www.virtualshareholdermeeting.com/RUBY2022. If you hold your shares through a bank, broker or other nominee and do not have a 16-digit control number but wish to vote online at the meeting, you must contact your broker, bank or other nominee so that you can be provided with a control number or legal proxy.

Those without a control number may attend as guests of the Annual Meeting. Guests will not have the option to vote or ask questions during the meeting.

How do I revoke my proxy?

If you are a stockholder of record, you may revoke your proxy by (1) following the instructions on the Notice and entering a new vote over the Internet or by telephone by the cutoff time of 11:59 p.m. Eastern Time on May 11, 2022, (2) attending the Annual Meeting online and voting by following the instructions at www.virtualshareholdermeeting.com/RUBY2022 or (3) by filing an instrument in writing revoking the proxy or submitting another duly executed proxy card bearing a later date with our Corporate Secretary. Any written notice of revocation or subsequent proxy card must be received by our Corporate Secretary prior to the taking of the vote at the Annual Meeting. Such written notice of revocation or subsequent proxy card should be hand delivered to our Corporate Secretary or sent to our principal executive offices at Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

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 do I attend the Virtual Annual Meeting?

This year’s Annual Meeting will be held entirely online in light of the ongoing effects of the coronavirus pandemic (COVID-19) and to support the health and well-being of our partners, employees, and stockholders. You will be able to attend the Annual Meeting online by accessing www.virtualshareholdermeeting.com/RUBY2022.

To join the Annual Meeting as a stockholder, you will need to have your 16-digit control number, which can be found on the Notice, voting instruction form or proxy card you received. If your shares are held in “street name” through a broker, bank or other nominee and you do not have a 16-digit control number, you must contact such broker, bank or nominee so that you can be provided with a control number or legal proxy. Those without a control number may attend as guests of the Annual Meeting but will not have the option to vote or ask questions during the meeting.

Even if you plan to attend the Annual Meeting online, we recommend that you also vote by proxy as described herein so that your vote will be counted if you decide not to attend the Annual Meeting.

Access to the Audio Webcast of the Annual Meeting

The live audio webcast of the Annual Meeting will begin promptly at 9:00 a.m. Eastern Time. Online access to the audio webcast will open approximately 15 minutes prior to the start of the Annual Meeting to allow time for you to log in and test the computer audio system. We encourage our stockholders to access the meeting prior to the start time.

Log in Instructions

To attend the online Annual Meeting, log in at www.virtualshareholdermeeting.com/RUBY2022. To participate as a stockholder, you will need your 16-digit control number, which can be found on the Notice, voting instruction form or proxy card you received. In the event that you hold your shares through a bank, broker or other nominee and do not have a control number, please contact such broker, bank or other nominee as soon as possible, so that you can be provided with a control number or legal proxy and gain access to the meeting. Those without a control number may attend as guests of the Annual Meeting but will not have the option to vote or ask questions during the meeting.

Submitting Questions at the Virtual Annual Meeting

If you have logged into the Annual Meeting using your 16-digit control number and wish to ask a question during the meeting, you may do so on the virtual meeting website by typing your question into the “Ask a Question” field, and clicking “Submit.” Those without a control number will not have the option to ask questions during the meeting.

If questions submitted are repetitive as to a particular topic, the Chairman of the meeting may limit discussion on such topic. During the formal portion of the meeting, all questions presented should relate directly to the proposal under discussion. We will also hold a question and answer period at the end of the meeting, as time permits, during which time we welcome questions not relating to specific proposals.

For further details, please review the Annual Meeting’s Rules of Conduct, which will be posted on www.virtualshareholdermeeting.com/RUBY2022 during the Annual Meeting.

Following the Annual Meeting, an archived replay of the audio webcast will be available on the Investor Relations section of our website for approximately ninety days thereafter.

Annual Meeting Technical Assistance

Beginning 15 minutes prior to the start of and during the virtual Annual Meeting, we will have a support team ready to assist stockholders with any technical difficulties they may have accessing or hearing the virtual meeting. If you encounter any difficulties accessing the virtual meeting during the check-in or meeting time, please call the technical support number that will be posted on the virtual shareholder meeting log-in page.

Availability of Live Webcast to Team Members and Other Constituents

The live audio webcast will be available to not only our stockholders but also our team members and other constituents.

How is a quorum reached?

Our Amended and Restated Bylaws, or bylaws, provide that a majority of the outstanding 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, our Amended and Restated Certificate of Incorporation, or certificate of incorporation, or our 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, 3 and 4 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 these 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.

What vote is required to adopt each proposal?

Each share of our common stock outstanding on the record date is entitled to one vote on any proposal presented at the Annual Meeting.

For Proposal No. 1, the election of directors, the nominees must receive a plurality of the votes properly cast on the proposal, meaning that the three director nominees receiving the most votes will be elected. Shares voting “withheld” and broker non-votes will have no effect on the outcome of Proposal No. 1.

For Proposal No. 2, a majority of the votes properly cast is required to ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022. Abstentions will have no effect on the outcome of Proposal No. 2.

For Proposal No. 3, a majority of the votes properly cast is required to approve the compensation of our named executive officers. Since this proposal is an advisory vote, the result will not be binding on our board, the compensation and talent committee, or the company. However, our board of directors values input from stockholders, and the compensation and talent committee will consider the outcome of the vote when making future decisions regarding the compensation of our named executive officers. Abstentions and broker non-votes will have no effect on the outcome of Proposal No. 3.

For Proposal No. 4, the frequency option that receives the highest number of votes properly cast — every one, two or three years — shall be deemed the frequency recommended by stockholders. Since this proposal is an advisory vote, the result will not be binding on our board of directors, the compensation and talent committee, or the company. However, our board of directors values input from stockholders, and the compensation and talent committee will consider the outcome of the vote when making future decisions regarding frequency of future advisory votes to approve the compensation of our named executive officers. Abstentions and broker non-votes will have no effect on the outcome of Proposal No. 4.

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 or by telephone, you are responsible for any Internet access or telephone 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 Broadridge Financial Solutions, Inc. 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.

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 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 disclosure of the date of such annual meeting was made.

In addition, nominations or any other 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 November 30, 2022. If the date of the 2023 annual meeting is moved by more than 30 days from the date of the previous year's meeting, 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.

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.

OVERVIEW OF PROPOSALS

This proxy statement contains four proposals requiring stockholder action. Proposal No. 1 requests the election of three class I directors to the board of directors. Proposal No. 2 requests the ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2022. Proposal No. 3 requests the approval, on a non-binding, advisory basis, of the compensation of our named executive officers for the year ended December 31, 2021 (say-on-pay). Proposal No. 4 requests that the stockholders express a preference, on a non-binding, advisory basis, on the frequency of future advisory votes to approve the compensation of our named executive officers. Each of the proposals is discussed in more detail in the pages that follow.

PROPOSAL NO. 1 — ELECTION OF CLASS I DIRECTORS

Our board of directors currently consists of nine 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 David R. Epstein, Natalie Holles, and Anne Prener, and their terms will expire at the Annual Meeting;
- the class II directors are Noubar B. Afeyan, Michael Rosenblatt, and Catherine A. Sohn, and their terms will expire at the annual meeting of stockholders to be held in 2023; and
- the class III directors are Pablo J. Cagnoni, Francis Cuss, and Sir Jonathan R. Symonds, 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 David R. Epstein, Natalie Holles, and Anne Prener 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.

Nominees for Election as Class I Directors

The table below and the paragraphs that follow identify our director nominees, and set forth their principal occupation and business experience during the last five years and their ages as of March 30, 2022.

Name	Positions and Offices Held with Rubius	Director Since	Age
David R. Epstein	Director ⁽¹⁾	2017	60
Natalie Holles	Director ⁽²⁾⁽³⁾	2019	49
Anne Prener, M.D., Ph.D.	Director ⁽¹⁾⁽³⁾	2019	64

(1) Member of our science and technology committee

(2) Member of our audit committee

(3) Member of our nominating and corporate governance committee

David R. Epstein has served as our Chairman and as a member of our board of directors since January 2017. Since January 2017, Mr. Epstein has also served as Executive Partner at Flagship Pioneering. Mr. Epstein also serves as Chairman of the board of directors of Evelo Biosciences, Inc. (Nasdaq: EVLO) and Axcella Health Inc. d/b/a Axcella Therapeutics (Nasdaq: AXLA) and as a member of the board of directors of Dynamics Special Purpose Corp. (Nasdaq: DYNs) and OPY Acquisition Corp. I (Nasdaq: OHAA). From February 2016 to January 2021, Mr. Epstein served on the board of directors of International Flavors and Fragrances, Inc. (NYSE: IFF). From January 2010 to July 2016, Mr. Epstein served as Chief Executive Officer of Novartis Pharmaceuticals Corporation, a pharmaceutical company and a division of Novartis AG. Mr. Epstein received an M.B.A. from Columbia Business School and a B.S. in pharmacy from Rutgers University. We believe that Mr. Epstein's extensive experience serving in executive roles in the life sciences industry and leading the development and commercialization of numerous therapeutics qualify him to serve on our board of directors.

Natalie Holles has served as a member of our board of directors since March 2019. Ms. Holles currently serves as Chief Executive Officer of Third Harmonic Bio, Inc., a biotechnology company. Prior to joining Third Harmonic Bio, Ms. Holles served as President and Chief Executive Officer of Audentes Therapeutics, Inc., a biotechnology company, from January 2020 to March 2021. From May 2018 until January 2020, Ms. Holles served as President and Chief Operating Officer of Audentes Therapeutics, Inc. and from August 2015 until May 2018, Ms. Holles served as Senior Vice President and Chief Operating Officer of Audentes Therapeutics, Inc. Previously, Ms. Holles served as Senior Vice President, Corporate Development at Hyperion Therapeutics, Inc., a rare disease pharmaceutical company, from June 2013 through its acquisition by Horizon Pharma, plc in May 2015. From August 2012 until June 2013, Ms. Holles served as the Executive Vice President, Corporate Development at Immune Design, Inc., an immunotherapy company, and from December 2010 to June 2013, Ms. Holles served as an independent life sciences corporate development consultant. Earlier in her career, Ms. Holles served as Vice President, Business Development at KAI Pharmaceuticals, Inc. and previously held corporate development and commercial roles at InterMune, Inc. and Genentech, Inc. Ms. Holles currently serves on the board of directors of Day One Biopharmaceuticals, Inc. (Nasdaq: DAWN). From December 2020 to August 2021, Ms. Holles served on the board of directors of Allakos Inc. (Nasdaq: ALLK). Ms. Holles holds an A.B. from Stanford University and an M.A. from the University of Colorado, Boulder. We believe that Ms. Holles' experience with pharmaceutical companies and her executive leadership, managerial and business experience qualify her to serve on our board of directors.

Anne Prener, M.D., Ph.D. has served as a member of our board of directors since December 2019. Since August 2020, Dr. Prener has served as President and Chief Executive Officer of Imbria Pharmaceuticals, Inc., a biotechnology company. Prior to that, Dr. Prener served as the President and Chief Executive Officer of Freeline Therapeutics, Ltd., a liver-directed gene therapy company, from July 2017 to June 2019. Prior to joining Freeline Therapeutics, she served as the Chief Executive Officer of Gyroscope Therapeutics Ltd., a gene therapy company focused on eye diseases, from August 2016 to July 2017. Before that, Dr. Prener was Vice President, Clinical Research and Global Therapeutic Area Head of Hematology at Baxalta from October 2014 to June 2016. From 1992 to December 2013, Dr. Prener held several positions of increasing responsibility at Novo Nordisk, most recently serving as Senior Vice President, Hemophilia R&D portfolio where she was instrumental in building the hemophilia franchise to a portfolio of several late stage and commercial products. Since April 2020, Dr. Prener has served on the board of directors of Kaleido Biosciences Inc. (Nasdaq: KLDO), and since January 2021, Dr. Prener has served on the board of directors of Galacto, Inc. (Nasdaq: GLTO). Dr. Prener holds a Ph.D. in epidemiology and an M.D., both from the University of Copenhagen. We believe that Dr. Prener's experience with pharmaceutical companies and her executive leadership, managerial and business experience qualify her to serve on our board of directors.

Vote Required and Board of Directors' Recommendation

To be elected, the directors nominated via Proposal No. 1 must receive a plurality of the votes properly cast on the proposal, meaning that the three director nominees receiving the most votes will be elected. Shares voting "withheld" and broker non-votes have no effect on the election of directors.

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

The board of directors recommends voting “FOR” the election of David R. Epstein, Natalie Holles and Anne Prener 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 table below and the paragraphs that follow identify our continuing directors, and set forth their principal occupation and business experience during the last five years and their ages as of March 30, 2022.

<u>Name</u>	<u>Positions and Offices Held with Rubius</u>	<u>Director Since</u>	<u>Class and Year in Which Term Will Expire</u>	<u>Age</u>
Noubar B. Afeyan, Ph.D.	Director ⁽³⁾⁽⁴⁾	2013	Class II – 2023	59
Michael Rosenblatt, M.D.	Director ⁽²⁾⁽⁴⁾	2014	Class II – 2023	74
Catherine A. Sohn, Pharm.D.	Director ⁽¹⁾⁽³⁾	2018	Class II – 2023	69
Pablo J. Cagnoni, M.D.	Director, President and Chief Executive Officer	2018	Class III – 2024	59
Francis Cuss, M.B., B. Chir., FRCP	Director ⁽³⁾⁽⁴⁾	2018	Class III – 2024	67
Sir Jonathan R. Symonds, CBE	Director ⁽¹⁾	2018	Class III – 2024	63

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- (1) Member of our audit committee
 - (2) Member of our nominating and corporate governance committee
 - (3) Member of our compensation and talent committee
 - (4) Member of our science and technology committee

Class II Directors (Term Expires at 2023 Annual Meeting)

Noubar B. Afeyan, Ph.D. is a co-founder of our company and has served as a member of our board of directors since 2013. Previously, Dr. Afeyan served as our President from April 2013 to May 2014 and as the Chairman of our board of directors from April 2013 to December 2014 and from July 2016 to January 2017. In 1999, Dr. Afeyan founded Flagship Pioneering and serves as its Senior Managing Partner and Chief Executive Officer. Since August 2010, Dr. Afeyan has served as Chairman of Moderna, Inc. (Nasdaq: MRNA) and since 2016 has served as Chairman of Omega Therapeutics, Inc. (Nasdaq: OMGA). He has previously served on the boards of numerous privately and publicly held companies, including Evelo Biosciences, Inc. (Nasdaq: EVLO), Kaleido Biosciences, Inc. (Nasdaq: KLDO) and Seres Therapeutics, Inc. (Nasdaq: MCRB). He received a Ph.D. in biochemical engineering from the Massachusetts Institute of Technology and a B.S. in chemical engineering from McGill University. Dr. Afeyan was previously a visiting lecturer of business administration at Harvard Business School and was previously a senior lecturer at MIT’s Sloan School of Management where he taught courses on technology-entrepreneurship, innovation and leadership. We believe that Dr. Afeyan’s significant experience co-founding, leading and investing in numerous biotechnology companies make him qualified to serve on our board of directors.

Michael Rosenblatt, M.D. has served as a member of our board of directors since December 2014 and is currently a Senior Partner at Flagship Pioneering. From September 2016 to December 2020, Dr. Rosenblatt served as Chief Medical Officer of Flagship Pioneering. From December 2009 to June 2016, he served as the Executive Vice President and Chief Medical Officer of Merck & Co. Inc. Dr. Rosenblatt serves on the board of directors of Azenta, Inc. (Nasdaq: AZTA) and has previously served on the board of directors of

Radius Health, Inc. (Nasdaq: RDUS). Dr. Rosenblatt received an M.D. from Harvard Medical School and an A.B. in chemistry from Columbia University. We believe that Dr. Rosenblatt's extensive medical and scientific knowledge and his experience in clinical development and executive management in the pharmaceutical industry qualify him to serve as a member of our board of directors.

Catherine A. Sohn, Pharm.D. has served as a member of our board of directors since January 2018. Since January 2011, Dr. Sohn has consulted for pharmaceutical, biotechnology, medical device and consumer healthcare companies in the areas of business strategy, business development and strategic product development at Sohn Health Strategies, LLC, which she founded and serves as President. Additionally, she is an adjunct professor at University of California, San Francisco. Dr. Sohn has served on the board of directors of Jazz Pharmaceuticals plc (Nasdaq: JAZZ), an international biopharmaceutical company, since July 2012, on the board of directors of Landec Corporation (Nasdaq: LNDC), a biomaterials and food company, since November 2012, and on the board of directors of Axcella Health Inc. (Nasdaq: AXLA), a biopharmaceutical company, since August 2019. Previously, Dr. Sohn served on the board of Neuralstem, Inc., a biopharmaceutical company, from January 2014 to May 2017. From 1982 to 2010, Dr. Sohn spent 28 years at GlaxoSmithKline plc and its predecessor companies, SmithKline Beecham and SK&F, serving as Senior Vice President from 2003 until 2010. Dr. Sohn received a Pharm.D. from the University of California, San Francisco and a certificate of professional development from the Wharton School at the University of Pennsylvania. She is a Governance Fellow of NACD and a Certified Licensing Professional Emeritus. We believe that Dr. Sohn is qualified to serve on our board of directors because of her experience with product development, strategic marketing and business development transactions in the pharmaceutical industry.

Class III Directors (Term Expires at 2024 Annual Meeting)

Pablo J. Cagnoni, M.D. has served as our Chief Executive Officer and as a member of our board of directors since June 2018. From April 2018 to June 2018, Dr. Cagnoni served as an advisor to our company. Before joining Rubius, from May 2015 to June 2018, Dr. Cagnoni served as President and Chief Executive Officer of Tizona Therapeutics, a privately held biotech company focused on developing next generation immunotherapies for the treatment of cancer. He joined Tizona as the company's first employee and grew the organization to support the filing of its first Investigational New Drug application. Prior to Tizona, from 2013 to 2015, he served as President of Onyx Pharmaceuticals, Inc. (acquired by Amgen), where he had global strategic oversight and accountability of the business from early product development to commercialization of the Onyx portfolio. Dr. Cagnoni joined Onyx in March 2013, as Executive Vice President, Global Research and Development and Technical Operations, and was named President in October 2013, when Onyx became an Amgen subsidiary. Previously, he was Senior Vice President and Global Head of Clinical Development at Novartis Oncology, where he was responsible for all clinical development, clinical operations, clinical pharmacology, and correlative sciences activities for the oncology development pipeline. From 2007 to 2009, Dr. Cagnoni was Senior Vice President and Chief Medical Officer at Allos Therapeutics, Inc. (acquired by Spectrum Pharmaceuticals) and, prior to that, Chief Medical Officer of OSI Pharmaceuticals, Inc. (acquired by Astellas). Earlier in his career, he served as Assistant Professor of Medicine, University of Colorado Bone Marrow Transplant Program, where he cared for patients undergoing stem cell transplants. Dr. Cagnoni currently serves on the board of directors for Fusion Pharmaceuticals, Inc. (Nasdaq: FUSN) and Turmeric Acquisition Corp. (Nasdaq: TPM) and on the board of trustees for the Bay Area Discovery Museum and is a member of the Council on Foreign Relations. He previously served as a board member for CRISPR Therapeutics AG (Nasdaq: CRSP), Harpoon Therapeutics, Inc. (Nasdaq: HARP) and Tango Therapeutics, Inc. (Nasdaq: TNGX). Dr. Cagnoni earned his medical degree from the University Buenos Aires School of Medicine, and he completed his fellowship in Hematology and Oncology at the Mount Sinai Medical Center, New York and a fellowship in Stem Cell Transplantation at the University of Colorado Health Sciences Center. We believe that Dr. Cagnoni's perspective and experience serving as our Chief Executive Officer and extensive experience supporting the development of therapeutics qualify him to serve on our board of directors.

Francis Cuss, M.B., B.Chir., FRCP has served as a member of our board of directors since January 2018. Dr. Cuss is currently retired from full-time operational roles. Previously, he served as the Executive Vice President, Chief Scientific Officer and Head of Research and Development of Bristol Myers Squibb Co., a pharmaceutical company, from July 2013 to March 2017, and as the Senior Vice President and Head of Research of Bristol Myers Squibb from April 2010 to June 2013. From November 2017 to December 2019,

Dr. Cuss served as an advisor to Biogen, Inc., a multinational biotechnology company. Since September 2017, Dr. Cuss has served on the board of directors of Novo Holdings A/S. Dr. Cuss received a B.A./M.A. in natural sciences and an M.B., B.Chir. in medicine from Cambridge University. We believe that Dr. Cuss' broad experience in pharmaceutical research, clinical development and executive management within globally-operating biopharmaceutical companies make him qualified to serve on our board of directors.

Sir Jonathan R. Symonds, CBE has served as a member of our board of directors since March 2018. Since September 2019, he has been Chairman of GlaxoSmithKline plc (NYSE: GSK), a multinational pharmaceutical company. He has also served, since October 2014, as a director of Genomics England plc, a government organization leading a genomics project, serving as Chairman between January 2019 and November 2019. Between April 2014 and February 2020, Sir Jonathan R. Symonds was Deputy Group Chairman and senior independent director of HSBC Holdings plc (NYSE: HSBC), a large international banking and financial institution and formerly was Chairman of HSBC Bank plc, HSBC's European subsidiary. Previously, Sir Jonathan R. Symonds served as the Chief Financial Officer of Novartis AG from September 2009 to January 2014 and as the Chief Financial Officer of AstraZeneca plc from October 1997 to July 2007. Sir Jonathan R. Symonds received a B.A. in business finance and an honorary doctorate in law from the University of Hertfordshire. We believe that Sir Jonathan R. Symonds is qualified to serve on our board of directors because of his experience as a senior finance executive in large publicly held biopharmaceutical companies.

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 or as noted in the following sentence, with a corporation or organization that is not a parent, subsidiary or other affiliate of us. As indicated above, Drs. Afeyan and Rosenblatt and Mr. Epstein are affiliated with our principal stockholder, the Flagship Pioneering Funds, and certain of the companies identified above where our directors currently, or have in the past, served as either directors or officers are also affiliated with Flagship Pioneering. 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 subsidiary.

Executive Officers Who Are Not Directors

The following table identifies our executive officers, and sets forth their current positions at Rubius and their ages as of March 30, 2022. Biographical information for Dr. Cagnoni, our President and Chief Executive Officer, is set forth under the heading "Directors Continuing in Office" above.

<u>Name</u>	<u>Position Held with Rubius</u>	<u>Officer Since</u>	<u>Age</u>
Jose Carmona	Chief Financial Officer	2020	50
Dannielle Appelhans	Chief Operating Officer	2021	39
Maiken Keson-Brookes	Chief Legal Officer and Corporate Secretary	2019	49
Laurence Turka, M.D.	Chief Scientific Officer and Head of Research and Translational Medicine	2020	64

Jose Carmona has served as our Chief Financial Officer since October 2020. Prior to joining our company, Mr. Carmona served as the Chief Financial Officer of Radius Health, Inc., a biopharmaceutical company that is developing and commercializing endocrine therapeutics, from May 2017 to September 2020. Prior to Radius, Mr. Carmona served as the Chief Financial Officer of Innocoll Holdings plc, a pharmaceutical and medical device company, and its predecessor entity, Innocoll AG, from September 2015 to May 2017. Prior to Innocoll, he served as Chief Financial Officer of Alcon Europe, Middle East & Africa, a division of Novartis AG, a pharmaceutical company, from 2013 to 2015 and prior to that he held numerous financial management positions with increasing responsibility at Novartis, as divisional Chief Financial Officer in North America, Latin America and other senior global financial roles, from 2003 to 2013. Mr. Carmona received his B.S. in industrial civil engineering from Universidad Tecnica Federico Santa Maria in Valparaiso, Chile, and his M.B.A. from Columbia Business School in New York City.

Danielle Appelhans has served as our Chief Operating Officer since August 2021. Prior to joining our company, Ms. Appelhans served as senior vice president of technical operations and chief technical officer at Novartis Gene Therapies from 2020 to 2021, where she oversaw late-stage development, clinical and commercial manufacturing, supply chain and all supporting operational functions for the gene therapy unit and AAV portfolio. Since 2014, she held positions of increasing responsibility in global supply chain, strategy and operational excellence across several divisions within Novartis. Before joining Novartis in 2014, Ms. Appelhans was a senior engagement manager at McKinsey & Company, working in the pharmaceutical operations practice. Earlier in her career she held roles of increasing responsibility at Eli Lilly and Company. Ms. Appelhans received her B.S. in Mechanical Engineering from the University of Michigan, her M.S. in Mechanical Engineering from the Massachusetts Institute of Technology and her MBA from the MIT Sloan School of Management.

Maiken Keson-Brookes has served as our Chief Legal Officer and Corporate Secretary since November 2019. Prior to joining our company, Ms. Keson-Brookes served as General Counsel of Synlogic, Inc. from December 2017 to November 2019. Prior to Synlogic, Ms. Keson-Brookes served as General Counsel of uniQure Inc. from December 2016 to July 2017. Prior to uniQure, Ms. Keson-Brookes served as General Counsel of Forum Pharmaceuticals, Inc. from March 2011 to June 2016. She holds Bachelor of Laws and Master of Laws degrees from King's College London.

Laurence Turka, M.D. has served as our Chief Scientific Officer since January 2020 and as our Head of Research and Translational Medicine since November 2021. Prior to joining our company, from March 2018 to January 2020, Dr. Turka co-founded and served as Chief Scientific Officer of Rheos Medicines, a pre-clinical biotechnology company focused on novel therapies targeting the metabolism of immune cells. Prior to Rheos, he was an entrepreneur-in-residence at Third Rock Ventures from May 2016 to February 2018. Before joining venture capital, Dr. Turka spent 30 years working in academia, most recently serving as the Harold and Ellen Danser Professor of Surgery, an appointment that he maintained from 2015 through February 2018, and Professor of Medicine at Harvard Medical School and Massachusetts General Hospital. Since March 2018, Dr. Turka has been the Harold and Ellen Danser Professor of Surgery, Emeritus. Dr. Turka currently serves as a member of the board of directors of the Federation of Clinical Immunological Societies. Dr. Turka received his M.D. from the Yale University School of Medicine and trained in internal medicine at Yale-New Haven Hospital and in nephrology at the Brigham and Women's Hospital/Harvard Medical School.

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 subsidiary or in which any such person has a material interest adverse to us or our subsidiary.

**PROPOSAL NO. 2 — RATIFICATION OF THE APPOINTMENT OF
PRICEWATERHOUSECOOPERS LLP AS RUBIUS’ INDEPENDENT REGISTERED PUBLIC
ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2022**

The audit committee of our board of directors has appointed PricewaterhouseCoopers LLP as Rubius’ independent registered public accounting firm for the fiscal year ending December 31, 2022. Rubius’ stockholders are being asked to ratify this appointment. PricewaterhouseCoopers LLP has served as Rubius’ independent registered public accounting firm since 2016.

The audit committee is solely responsible for selecting Rubius’ independent registered public accounting firm for the fiscal year ending December 31, 2022. Stockholder approval is not required to appoint PricewaterhouseCoopers LLP as Rubius’ independent registered public accounting firm. However, the board of directors believes that submitting the appointment of PricewaterhouseCoopers 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 PricewaterhouseCoopers LLP. If the selection of PricewaterhouseCoopers 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 Rubius and its stockholders.

A representative of PricewaterhouseCoopers LLP is expected to be present at the 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.

Rubius incurred the following fees from PricewaterhouseCoopers LLP for the audit of the consolidated financial statements and for other services provided during the years ended December 31, 2021 and 2020.

	2021	2020
Audit fees ⁽¹⁾	\$1,027,500	\$582,500
Audit-related fees	—	—
Tax fees	—	—
All other fees ⁽²⁾	3,656	2,700
Total fees	<u>\$1,031,156</u>	<u>\$585,200</u>

- (1) Audit fees consist of fees for the audit of our annual financial statements, the review of our interim financial statements included in our quarterly reports on Form 10-Q, comfort letter procedures and services provided in connection with our registration statements on Form S-8.
- (2) Consists of license fees for accounting research software.

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. Any such pre-approval details the particular service or type of services to be provided and is also generally subject to a maximum dollar amount.

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

Vote Required and Board of Directors’ Recommendation

The approval of Proposal No. 2 requires that a majority of the votes properly cast vote FOR this proposal. Shares that are voted “abstain” will not affect the outcome of this proposal.

The board of directors recommends voting “FOR” Proposal No. 2 to ratify the appointment of PricewaterhouseCoopers LLP as Rubius’ independent registered public accounting firm for the fiscal year ending December 31, 2022.

**PROPOSAL NO. 3 — APPROVAL, ON A NON-BINDING, ADVISORY BASIS,
OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS
FOR THE YEAR ENDED DECEMBER 31, 2021**

Consistent with good governance practices and Section 14A of the Exchange Act, we provide our stockholders with the opportunity to vote to approve, on a non-binding, advisory basis, not less frequently than once every three years, the compensation of our named executive officers as disclosed in our annual proxy statement in accordance with the compensation disclosure rules of the SEC. This is commonly known as a “say-on-pay” proposal.

As described in detail under the heading “Compensation Discussion and Analysis,” we seek to closely align the interests of our named executive officers with the interests of our stockholders. Our compensation program is designed to reward our named executive officers for the achievement of short-term and long-term financial, operational, and strategic goals and the achievement of increased total stockholder return, while at the same time avoiding the encouragement of unnecessary or excessive risk-taking.

Stockholders are urged to read the “Compensation Discussion and Analysis” and “Executive Compensation” sections of this proxy statement, which discuss how our executive compensation policies and practices implement our compensation philosophy and contain tabular information and narrative discussion about the compensation of our named executive officers. Our board of directors and the compensation and talent committee believe that these policies and practices are effective in implementing our compensation philosophy and in achieving our compensation program goals.

This proposal is not intended to address any specific item of compensation or the compensation of any particular officer, but rather the overall compensation of our named executive officers and our compensation philosophy, policies and practices described in this proxy statement.

We are asking our stockholders to vote “FOR” the following resolution at the Annual Meeting:

“**RESOLVED**, that Rubius’ stockholders approve, on a non-binding, advisory basis, the compensation of Rubius’ named executive officers, as disclosed in this proxy statement, including the “Compensation Discussion and Analysis,” the “Summary Compensation Table” and the other related tables and narrative disclosure.”

Before you vote, we urge you to read the “Executive Compensation” section of this proxy statement, which describes in more detail our executive compensation programs and philosophy.

This say-on-pay vote is advisory only, meaning that it is not binding on Rubius, the compensation and talent committee or our board of directors. Although the vote is advisory, our board of directors and our compensation and talent committee value the opinions of our stockholders and expect to take the outcome of this vote into account when considering future compensation arrangements for our executive officers.

Vote Required and Board of Directors’ Recommendation

Proposal No. 3 will be approved if a majority of the votes properly cast vote FOR this proposal. Abstentions and broker non-votes will not affect the outcome of this proposal.

The board of directors recommends voting “FOR” Proposal No. 3 to approve, on a non-binding, advisory basis, the compensation of our named executive officers for the year ended December 31, 2021.

**PROPOSAL NO. 4 — NON-BINDING, ADVISORY VOTE ON THE FREQUENCY
OF FUTURE ADVISORY VOTES TO APPROVE THE COMPENSATION
OF OUR NAMED EXECUTIVE OFFICERS**

Consistent with Section 14A of the Exchange Act, Rubius stockholders have the opportunity to vote, on a non-binding, advisory basis, for their preference as to how frequently we should seek future non-binding, advisory votes to approve the compensation of our named executive officers as disclosed in our proxy statement in accordance with the compensation disclosure rules of the SEC. We are required to solicit stockholder votes on the frequency of future non-binding, advisory votes to approve the compensation of our named executive officers at least once every six years, although we may seek stockholder input more frequently. By voting with respect to this Proposal No. 4, stockholders may indicate whether they would prefer that we conduct future advisory votes to approve the compensation of our named executive officers every one year, every two years or every three years.

The board of directors has determined that an annual non-binding, advisory vote to approve the compensation of our named executive officers will permit our stockholders to provide timely and direct input on our executive compensation program as disclosed in the proxy statement each year, which is consistent with our efforts to engage in an ongoing dialogue with our stockholders on executive compensation and other corporate governance matters. Based on the foregoing, the board of directors has recommended that future non-binding, advisory votes to approve the compensation of our named executive officers occur every year.

While the board of directors believes that its recommendation is appropriate at this time, Rubius' stockholders are not voting to approve or disapprove that recommendation, but are instead asked to indicate their preference, on a non-binding, advisory basis, as to whether future non-binding, advisory votes to approve the compensation of our named executive officers should be held every one year, every two years or every three years.

Accordingly, the board of directors is asking our stockholders to indicate their preferred voting frequency by voting for the frequency option of every "1 YEAR," "2 YEARS" or "3 YEARS" in response to the following resolution at the Annual Meeting:

"RESOLVED, that Rubius stockholders indicate, by their non-binding, advisory vote on this resolution, whether future non-binding, advisory votes to approve the compensation of Rubius' named executive officers should occur every one year, every two years or every three years."

Although this vote is advisory only and not binding on Rubius, our board of directors and the compensation and talent committee will take into account the outcome of the vote when considering the frequency of future non-binding, advisory votes to approve the compensation of our named executive officers.

Vote Required and Board of Directors' Recommendation

The option that receives the highest number of votes properly cast for this proposal — every one, two or three years — will be deemed to be the frequency recommended by our stockholders. However, because this vote is advisory and therefore not binding on Rubius, the board of directors may decide that it is in the best interests of the stockholders that we hold future non-binding, advisory votes to approve the compensation of our named executive officers more or less frequently than the option recommended by our stockholders. Abstentions and broker non-votes will not affect the outcome of this proposal.

The board of directors recommends a vote for the frequency option of every "ONE YEAR" on Proposal No. 4 as the preferred frequency for future non-binding, advisory votes to approve the compensation of our named executive officers.

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 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:

- Nominees should have experience at a strategic or policymaking level in a business, government, non-profit or academic organization of high standing.
- Nominees should be highly accomplished in their respective fields, with superior credentials and recognition.
- Nominees should be well regarded in the community and shall have a long-term reputation for high ethical and moral standards.
- Nominees should 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.

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 Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, 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 such candidate's election, then such candidate's 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 Stock Market LLC, or Nasdaq, rules require that a majority of a listed company's board of directors 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 such member’s 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 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 Dr. Cagnoni and Mr. Epstein, 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. Dr. Cagnoni is not an independent director under these rules because he is an executive officer of the company. Mr. Epstein is not an independent director under these rules due to his consulting arrangement with us, as described further under the section captioned “Director Compensation — Chairman Compensation” below.

Director Diversity

Our board of directors values the racial, ethnic and gender diversity of its members. Presently, four out of nine of our board members are diverse in race, ethnicity or gender, as indicated in the below table:

Director	David R. Epstein	Noubar B. Afeyan, Ph.D.	Pablo J. Cagnoni, M.D.	Francis Cuss, M.B., B.Chir., FRCP	Natalie Holles	Anne Prener, M.D., Ph.D.	Michael Rosenblatt, M.D.	Catherine A. Sohn, Pharm. D.	Sir Jonathan Symonds, CBE
Gender									
Male	•	•	•	•			•		•
Female					•	•		•	
Non-Binary									
Demographic									
African American or Black									
Alaskan Native or Native American									
Asian									
Hispanic or Latinx			•						
Native Hawaiian or Pacific Islander									
White	•	•		•	•	•	•	•	•
Middle Eastern									
North African									
Two or More Races or Ethnicities									
Supplemental Demographic									
Military Veteran									
LGBTQ+									
Person with Disability									

Board Committees

Our board of directors has established an audit committee, a compensation and talent committee, a nominating and corporate governance committee and a science and technology committee. Each of the audit committee, compensation and talent committee, and nominating and corporate governance committee operates under a charter that satisfies the applicable standards of the SEC and Nasdaq. Each such committee reviews its respective charter at least annually. A current copy of the charter for each of the audit committee, compensation and talent committee, and nominating and corporate governance committee is posted on the corporate governance section of our website, <https://ir.rubiustx.com/corporate-governance/documents-and-charters>.

Audit Committee

Natalie Holles, Catherine A. Sohn, and Sir Jonathan R. Symonds serve on the audit committee, which is chaired by Sir Jonathan R. Symonds. 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 Sir Jonathan R. Symonds 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 five 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;
- overseeing the company’s risk management protocols and procedures, including our information security and technology risks and programs, and preparing an annual report to our board of directors on the audit committee’s risk assessment findings and risk management activities;
- 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;
- evaluating whether there are appropriate internal processes, procedures and controls in place to ensure the company’s disclosures are complete and accurate, including but not limited to disclosures related to environmental, social and governance, or ESG, matters;
- overseeing and assessing the quality and effectiveness of the company’s cybersecurity and data privacy management, technology, policies and procedures protecting the company’s information technology systems, data, products and services across all business functions;

- 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 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 and Talent Committee

Noubar B. Afeyan, Francis Cuss, and Catherine A. Sohn serve on the compensation and talent committee, or the compensation committee, which is currently chaired by Dr. Sohn. During 2021, Dr. Afeyan served as chair until February 24, 2021 and Dr. Sohn served as chair from and after that date. 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 recommending to the board of directors 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 recommending to the board of directors the compensation of our Chief Executive Officer;
- reviewing and approving the compensation of our other executive officers and direct reports to the Chief Executive Officer;
- reviewing and recommending to the board of directors the compensation of members of our board of directors, including our Chairman;
- reviewing and establishing our overall management compensation, philosophy, and policy;
- overseeing and administering our compensation and similar plans;
- overseeing the company’s talent management processes;
- reviewing and advising management regarding the company’s human capital management strategies, including culture, diversity and inclusion strategies, programs and initiatives;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq rules;
- retaining and approving the compensation of any compensation advisors;
- reviewing and making recommendations to our board of directors about our policies and procedures for the grant of equity-based awards;
- providing oversight regarding the company’s public disclosure of director and executive compensation information and preparing the compensation committee report required by SEC rules to be included in our annual proxy statement;
- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters; and
- reviewing and discussing with the board of directors corporate succession plans for our Chief Executive Officer and our other key officers.

Nominating and Corporate Governance Committee

Natalie Holles, Anne Prener, and Michael Rosenblatt serve on the nominating and corporate governance committee, which is chaired by Dr. Rosenblatt. 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 four 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, expertise and diversity 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 code of business conduct and ethics and a set of corporate governance guidelines;
- reviewing and overseeing the company’s ESG strategy, initiatives, and policies, including matters related to environmental, health and safety, diversity and inclusion, and ethics and compliance programs; and
- overseeing the evaluation of our board of directors and management.

The board of directors has delegated to the nominating and corporate governance committee the responsibility of identifying prospective candidates for board of director membership and recommending such candidates to the board of directors. 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.

Minimum Qualifications. Our nominating and corporate governance committee and our board of directors consider a broad range of factors relating to the qualifications of nominees. Our nominating and corporate governance committee's and our board of directors' priority in selecting board members is the identification of persons who will provide a composite mix of backgrounds, experience, knowledge and capabilities that will allow our board to promote our strategic objectives and fulfill its responsibilities to our stockholders. Our nominating and corporate governance committee and our board of directors value diversity and, as such, also consider diversity of gender, race, ethnicity, age, gender identity, gender expression and sexual orientation when selecting members of our board.

Science and Technology Committee

Francis Cuss, Anne Prener, Noubar B. Afeyan, David R. Epstein, and Michael Rosenblatt currently serve on the science and technology committee, which is chaired by Dr. Cuss. During the fiscal year ended December 31, 2021, the science and technology committee met two times. The science and technology committee's responsibilities include periodically reviewing and advising the board of directors on the company's strategic direction and investment in research and development and technology both internally and externally. The science and technology committee is also responsible for identifying and discussing significant emerging trends and issues in science and technology and considering the potential impact of such on the company.

Board and Committee Meetings Attendance

The full board of directors met eight 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

Directors are responsible for attending the annual meeting of stockholders to the extent practicable. In 2021, five directors attended the annual meeting.

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 short sales, purchases or sales of puts, calls, other derivative securities of the company and any derivative securities that provide the economic equivalent of ownership of any of the company's securities, engaging in any other hedging transaction with respect to the company's securities, using the company's securities in a margin account, and pledging the company securities as collateral, in each case by our executive officers, directors, certain designated employees (which currently includes all of our employees) and certain designated consultants.

Rule 10b5-1 Sales Plans

Our policy governing transactions in our securities by directors, officers and employees permits our directors, officers and certain other persons to enter into trading plans complying with Rule 10b5-1 under the Exchange Act. Generally, under these trading plans, the individual relinquishes control over the transactions once the trading plan is put into place and can only put such plans into place while the individual is not in possession of material non-public information. Accordingly, sales under these plans may occur at any time, including possibly before, simultaneously with, or immediately after significant events involving our company. We require our directors and executives to plan any stock trading in advance through the use of 10b5-1 plans.

Corporate Social Responsibility

Giving Back. We strive to improve the health and well-being of the patients whom we serve, our employees and our communities. Our giving reflects this vision and supports national and community-based organizations, patient groups and the scientific community to deliver solutions that ensure a healthier and more equitable future for everyone. We aim to achieve this vision by addressing inequities in our society through partnerships with a wide range of organizations that our employees select to support. Each year, we select two organizations to support within each of our areas of focus. Our charitable giving strategy focuses on two areas: Diversity, Inclusion, Social and Racial Justice and Community Health and Wellness. During the 2021 calendar year, we supported various charities embodying these areas of focus, including Girls on the Run, the New England Innocence Project, Big Brothers Big Sisters and Team No Kid Hungry. Additionally, we have been a Life Science Cares corporate partner since 2020, and our Chief Executive Officer Pablo J. Cagnoni is a member of its Board of Advisors. We also proudly support programs that offer support and resources to patients and their advocates in our therapeutic areas of focus.

We dedicate one day a year where all of our employees come together in support of a volunteer project to strengthen our local communities, build bridges and address issues. In addition to this annual community service day, our employees have the opportunity to donate eight hours of paid time per year to any 501(c)(3) charity of their choice across any cause.

Sustainability and Health and Safety. At Rubius, we strive to implement sustainable practices that mitigate human impact on the environment where possible. Our sustainability initiatives include recycling and reuse programs, waste reduction initiatives, energy conservation and sustainable lab practices, employee-led “Green Teams” and energy efficient manufacturing procurement practices. In 2022, we plan to continue to explore ways to ensure that our operations promote long-term sustainability and that we minimize our footprint as we grow.

The health and safety of our employees is of paramount importance to us and we are committed to the health, safety and well-being of our employees and stakeholders. We maintain a comprehensive health and safety program that complies with applicable laws and equals or exceeds industry best practices.

Diversity and Inclusion and Human Capital. We believe that each of our employees is unique and we celebrate this diversity. The foundation of our culture is built on inclusion, belonging and deep seeded trust. In July 2020, our President, Chief Executive Officer and director, Pablo J. Cagnoni, signed MassBio’s “CEO Pledge for a More Equitable and Inclusive Life Sciences Industry,” evidencing our commitment to fair treatment and equality of opportunity, building a culture of diversity and inclusion and proactively addressing inequality in all aspects of our business.

Rubius prides itself on consistently living its core values of integrity, inventiveness, inclusivity, courage and urgency across every function at every level. We have a culture unlike anywhere else, one that is uniquely tied to our values and emanates through the work that we do for patients every single day. We are proud to have been named to the list of Top Places to Work in Massachusetts by the Boston Globe and the Top 3 Best Places to Work in Rhode Island by the Providence Business News.

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 corporate governance section of our website, which is located at <https://ir.rubiustx.com/corporate-governance/documents-and-charters>. As permitted by Item 5.05 of Form 8-K, we intend to disclose any amendment to or waiver of a provision of our code of business conduct and ethics, to the extent required by rules and regulations, that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, by posting such information on our website at <https://ir.rubiustx.com/corporate-governance/documents-and-charters>.

Board Leadership Structure and Board's Role in Risk Oversight

Currently, the role of Chairman 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 Chairman 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 Chairman, particularly as the board of directors' oversight responsibilities continue to grow. While our bylaws and our corporate governance guidelines do not require that our Chairman 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 activities, operations, strategic direction and intellectual property and, more recently, risk exposures related to COVID-19. 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.

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. 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.

Our board of directors continues to receive regular updates from our management team with respect to the impact of the COVID-19 pandemic on our business and has discussed these updates with our management team, including with regard to our manufacturing operations, supply chain, clinical trial enrollment and employee matters, among other items. As part of its risk management oversight, our board of directors has been working with our management team to identify and monitor COVID-19 related risks to our company, and has been apprised of strategy decisions and other actions management is taking to mitigate risks related to the impact of COVID-19 on our business.

Communication with the Directors of Rubius

Any stockholder or interested party may communicate with our board of directors, as a whole, or with individual directors on the board of directors, through an established process for stockholder and other interested party communication. For a communication directed to the board of directors as a whole, stockholders and other interested parties may submit a written communication by postal mail to the attention of the Chairman of the Board at the following address: Rubius Therapeutics, Inc., Attention: Chairman of the Board of Directors, c/o Secretary, 399 Binney Street, Suite 300, Cambridge, Massachusetts 02139.

For a communication directed to an individual director in his or her capacity as a member of the board of directors, stockholders and other interested parties may send such communication to the attention of the individual director at the following address: Rubius Therapeutics, Inc., Attention: [Name of Individual Director] c/o Secretary, 399 Binney Street, Suite 300, Cambridge, Massachusetts 02139.

We will forward by U.S. Mail any such communication to each director, and the Chairman of the Board in his or her capacity as a representative of the board of directors, to whom such communication is addressed to the address specified by each such director and the Chairman of the Board, unless there are safety or security concerns that mitigate against further transmission. A copy of any such written communication may also be forwarded to Rubius' legal counsel and a copy of such communication may be retained for a reasonable period of time. You may submit your concern anonymously or confidentially.

The audit committee oversees the procedures for the receipt, retention, and treatment of complaints received by Rubius 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. Rubius has also established a toll-free telephone number for the reporting of such activity, which is 877-859-9462.

DIRECTOR COMPENSATION

The table below shows all compensation paid to each individual who served as a non-employee member of our board of directors during 2021 for their services as directors in 2021. Dr. Cagnoni, our President and Chief Executive Officer, receives no compensation for his service as a director, and, consequently, is not included in this table. The compensation received by Dr. Cagnoni as an employee during 2021 is presented in the “Summary Compensation Table” later in this proxy statement.

Name	Fees Earned In Cash (\$) ⁽¹⁾	Option Awards (\$) ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾	All Other Compensation (\$)	Total (\$)
Noubar B. Afeyan, Ph.D.	44,744	374,648	—	419,392
Francis Cuss, M.B., B.Chir., FRCP	52,014	374,648	—	426,662
David R. Epstein	495,000	404,994	—	899,994
Natalie Holles	50,514	374,648	—	425,162
Anne Prener, M.D., Ph.D.	43,014	374,648	—	417,662
Michael Rosenblatt, M.D.	47,014	374,648	—	421,662
Catherine A. Sohn, Pharm.D.	55,741	374,648	—	430,389
Sir Jonathan R. Symonds, CBE	54,014	374,648	—	428,662

- (1) Amounts represent cash compensation for services rendered by each member of the board of directors.
- (2) In 2021, Drs. Afeyan, Cuss, Prener, Rosenblatt and Sohn, Sir Jonathan R. Symonds and Ms. Holles were each granted an option to purchase 25,000 shares of common stock on May 12, 2021, the date of the 2021 annual meeting of stockholders.
- (3) In 2021, Mr. Epstein was granted an option to purchase 27,919 shares of common stock on May 12, 2021, the date of the 2021 annual meeting of stockholders, in accordance with the terms of the Second Amended and Restated Chairman Agreement between Mr. Epstein and us, dated June 21, 2018.
- (4) Amounts shown reflect the grant date fair value of option awards granted during 2021. The grant date fair value was computed in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718, Compensation — Stock Compensation, disregarding the effect of estimated forfeitures related to service-based vesting. See Note 8 to the financial statements in our 2021 Annual Report regarding assumptions we used in determining the fair value of option awards.
- (5) Non-employee directors who served on the board of directors during 2021 held no stock awards and held unexercised options to purchase the following number of shares as of December 31, 2021:

Director	Number of Shares Underlying Stock Options
Noubar B. Afeyan, Ph.D.	100,000
Francis Cuss, M.B., B.Chir., FRCP	230,000
David R. Epstein	2,301,053
Natalie Holles	100,000
Anne Prener, M.D., Ph.D.	75,000
Michael Rosenblatt, M.D.	250,000
Catherine A. Sohn, Pharm.D.	230,000
Sir Jonathan R. Symonds, CBE	270,000

Non-Employee Director Compensation

Under our amended and restated director compensation program, we pay each of our non-employee directors other than our Chairman a cash retainer for service on the board of directors and for service on each committee on which the director is a member. The chair of each committee receives a higher retainer for such service. These fees are payable in arrears in four equal quarterly installments on the last day of each quarter, provided that the amount of such payment is prorated for any portion of such quarter that the director is not serving on our board of directors. The fees paid to non-employee directors in 2021, other than our Chairman, for service on the board of directors and for service on each committee of the board of directors on which the director is a member are as follows:

	<u>Annual Retainer⁽¹⁾</u>
Board of Directors:	
All non-employee members, except Chairman	\$40,000
Audit Committee:	
Members	\$ 7,500
Chair	\$15,000
Compensation and Talent Committee:	
Members	\$ 5,000
Chair	\$10,000
Nominating and Corporate Governance Committee:	
Members	\$ 4,000
Chair	\$ 8,000
Science and Technology Committee:	
Members	\$ —
Chair	\$ 8,000

(1) The annual cash retainer for the chairs of our compensation committee, our nominating and corporate governance committee and our science and technology committee increased to \$15,000, \$10,000, and \$10,000, respectively, and the annual cash retainer for members of our compensation committee and our nominating and corporate governance committee increased to \$7,500 and \$5,000, respectively, in each case effective February 23, 2022.

We also reimburse our non-employee directors for reasonable travel and out-of-pocket expenses incurred in connection with attending our board of directors and committee meetings.

In addition, each new non-employee director elected to our board of directors is granted an initial, one-time equity award of an option to purchase 50,000 shares of our common stock, which vests in equal quarterly installments during the 12 quarters following the grant date, subject to continued service as a director through such vesting date. Immediately following each annual meeting of stockholders of our company, each non-employee director who has served as a director for the previous six months receives an annual equity award of an option to purchase 25,000 shares of common stock, which vests on the earlier of the one-year anniversary of the grant date and the company's next annual meeting of stockholders, subject to continued service as a director through such vesting date.

Our compensation committee reviews our non-employee director compensation program on an annual basis and recommends to our board of directors, for their review and approval, changes that it deems necessary to attract and retain highly-skilled directors, based on publicly available information (including with respect to our peer group) and information and advice provided by our independent compensation consultant. This program is intended to provide a total compensation package that enables us to attract and retain qualified and experienced individuals to serve as directors and to align our directors' interests with those of our stockholders.

Chairman Compensation

On June 21, 2018, we entered into a Second Amended and Restated Chairman Agreement with David R. Epstein, or the Chairman Agreement, which sets forth the terms of his consulting arrangement with us. Pursuant to the terms of the Chairman Agreement, Mr. Epstein serves as Chairman of our board of directors and has agreed to dedicate approximately 50 working days per year to us. As compensation for Mr. Epstein's services, we pay the limited liability company of which Mr. Epstein is the managing member a base retainer of \$495,000 per year and Mr. Epstein is granted a stock option each year with a grant date fair value of approximately \$405,000, which options are fully vested upon grant. The Chairman Agreement contains non-competition provisions that apply during the term of Mr. Epstein's service and for one year thereafter.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

The following Compensation Discussion and Analysis describes the material elements of compensation for the following individuals who served as our principal executive officer, principal financial officer and three other most highly compensated executive officers as of December 31, 2021. The following individuals are our named executive officers, or NEOs, for 2021.

- Pablo J. Cagnoni, M.D., our President and Chief Executive Officer;
- Jose Carmona, our Chief Financial Officer;
- Dannielle Appelhans, our Chief Operating Officer;
- Maiken Keson-Brookes, our Chief Legal Officer and Corporate Secretary; and
- Laurence Turka, M.D., our Chief Scientific Officer and Head of Research and Translational Medicine

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Executive Summary

We are a clinical-stage biopharmaceutical company that is biologically engineering red blood cells to develop an entirely new class of cellular medicines called Red Cell Therapeutics, or RCTs, for the treatment of cancer and autoimmune diseases. Based on our vision that human red blood cells are the foundation of the next significant innovation in medicine, we have developed a programmable and highly versatile platform, which we call the RED PLATFORM, to biologically engineer and culture allogeneic red blood cell therapies that enable multiple applications, or modalities.

The following are descriptions of our lead product candidates:

- RTX-240, our lead oncology program, is an allogeneic, off-the-shelf cellular therapy product candidate that is designed to broadly stimulate the immune system by activating and expanding both NK and memory T cells to generate a potent anti-tumor response;
- RTX-321, our second oncology program, is an allogeneic, off-the-shelf artificial antigen presenting cell therapy product candidate that is engineered to induce a tumor-specific immune response by expanding antigen-specific T cells; and
- RTX-224, is an allogeneic, off-the-shelf cellular therapy product candidate that is designed as a broad immune agonist of both adaptive and innate responses, activating CD8+ and CD4+ T cells, promoting antigen presentation and activating and expanding NK cells, and that is expected to produce a broad and potent anti-tumor T cell response, an innate immune response and have anti-tumor activity in those tumor types with known sensitivity to T cell killing, including tumor types with high mutational burden, PD-L1 expression and prior activity of checkpoint inhibitors.

In addition to the development of our lead product candidates, we continue to advance our preclinical-stage autoimmune program in Type 1 diabetes and explore ways in which to apply the RED PLATFORM across the remainder of our pipeline.

Our Strategy

Our vision is to create life-changing, allogeneic cellular therapies for patients with severe diseases. To achieve our vision, we are executing a strategy with the following key elements:

- Establish RCTs as a new class of cellular medicines, demonstrating their potential across two initial product categories: cancer and autoimmune diseases;
- Pursue accelerated paths to marketing authorization;

- Build a leading, fully integrated cellular therapy company;
- Further strengthen our position as the pioneer of RCTs through continuous platform expansion and improvement;
- Expand patient access to RCTs through strategic partnerships; and
- Maintain a strong culture, continuously attract new talent and build the world’s leading center for red blood cell biology research and engineering.

In 2021, consistent with our strategy, we continued to focus on research and development activities within our oncology and autoimmune therapeutic areas, as well as on the clinical development of our lead product candidates.

Our executive compensation programs have been designed to focus our team on realizing the potential of RCTs and discovering ways to leverage our RED PLATFORM across our pipeline. In determining our annual corporate objectives, we focus on the shorter-term milestones that we believe will achieve these goals. However, we also believe it is important to incentivize achievement of long-term success through equity compensation, consisting of stock options and restricted stock units, or RSUs. Stock options and RSUs help reinforce the long-term orientation of our executives given their multi-year vesting period. We believe this general program design, which balances long-term objectives with shorter-term goals, will enable us to deliver for our patients and stockholders alike.

2021 Performance Highlights

Despite the challenges faced due to the COVID-19 pandemic in 2021, we demonstrated strong execution across our pipeline of RCTs. Performance highlights for 2021 are described in the table below.

Clinical Development	<ul style="list-style-type: none"> • Presented initial clinical data from the single agent solid tumor arm of our ongoing Phase 1/2 clinical trial of RTX-240 • Shared preliminary trafficking data from the first acute myeloid leukemia, or AML, patient in the AML arm of our RTX-240 clinical trial • Began dosing patients in the arm of our RTX-240 clinical trial that is evaluating RTX-240 as a combination therapy with pembrolizumab for the treatment of patients with relapsed/refractory or locally advanced solid tumors • Initiated a Phase 1 clinical trial of RTX-321 for the treatment of advanced HPV 16-positive cancers • Received clearance of an Investigational New Drug, or IND, application for RTX-224
Financial	<ul style="list-style-type: none"> • Completed a \$200 million follow-on equity financing • Renegotiated our \$75 million debt facility to extend the interest only and repayment periods by two and a half years
Research & Development	<ul style="list-style-type: none"> • Shared preclinical proof of concept data, demonstrating tolerance induction and the potential for bystander suppression in two stringent type 1 diabetes preclinical models

Manufacturing	<ul style="list-style-type: none"> • Increased cells produced per batch in 50L bioreactors by four times that of 2020, enabling uninterrupted clinical supply for three Phase 1 arms of the RTX-240 clinical trial and for the Phase 1 RTX-321 trial • Introduced frozen drug substance for RTX-321 and RTX-224, potentially enabling inventory storage for more than two years • Achieved greater than 90% lot success rate for RTX-240 and RTX-321 clinical supply • Administered hundreds of doses across all three arms of our RTX-240 Phase 1/2 trial and our RTX-321 Phase 1 trial • Achieved high transduction efficiency, with greater than 90% of cells transduced with therapeutic proteins
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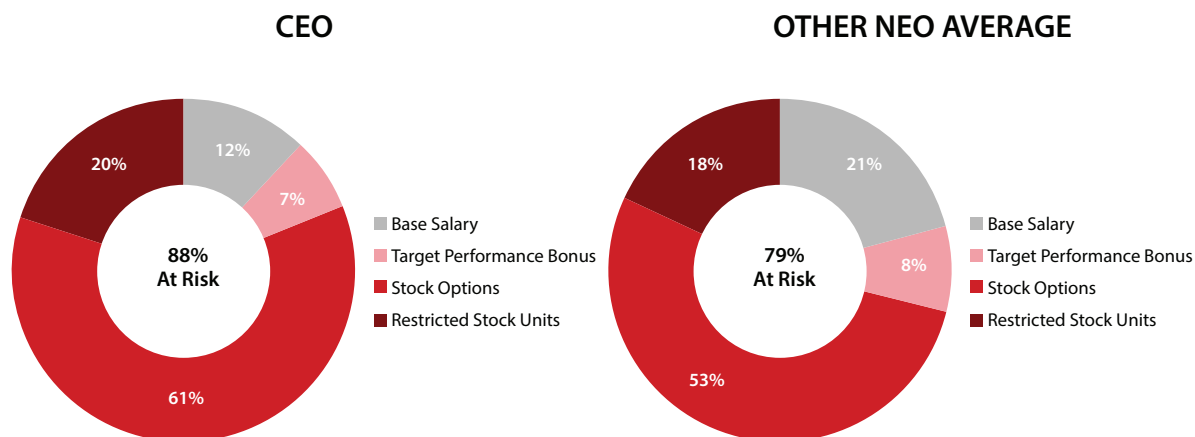
Key Features of Our Executive Compensation Program

What We Do	What We Don't Do
Design executive compensation to align pay with performance	No excessive change in control or severance payments
Balance short-term and long-term incentive compensation, with the majority of executive compensation being “at-risk”	No “single-trigger” cash or equity change in control benefits
Align annual performance bonus plan for CEO with that of other executives and employees, with 100% of CEO’s bonus based on corporate performance goals approved by the board of directors	No health and welfare or retirement benefits that are not available to employees generally
Provide only “double-trigger” change in control benefits	No post-termination retirement or defined benefit pension benefits
Prohibit hedging and pledging by executive officers and directors	No guaranteed bonuses or base salary increases
Maintain 100% independent directors on the compensation committee	No repricing of underwater stock options without prior stockholder approval
Engage an independent compensation consultant who reports directly to the compensation committee	No excessive perquisites
Hold regular compensation committee meetings in executive session without management present	No tax gross ups on severance or change in control benefits
Effective January 2022, maintain a clawback policy applicable to performance-based executive cash and equity compensation	
Require our executives to plan any stock trading in advance through the use of 10b5-1 plans	

2021 Pay-for-Performance Overview

A significant portion of target total direct compensation for our CEO and other NEOs is structured in the form of “at-risk” compensation, consisting of annual performance bonus and equity incentive awards, with the performance bonus payouts and equity award values dependent in large part upon our company’s performance. This aligns our executives’ interests with those of our stockholders for both near- and long-term performance. Despite adverse macroeconomic uncertainties and other conditions created by the COVID-19 pandemic that had an impact on our business in 2021, the compensation committee elected not to adjust the challenging company goals set for our 2021 annual performance bonus plan.

The pie charts below show the various regular components of target total direct compensation for 2021 for our CEO and other NEOs. These components include the following: (i) annual base salary rate for 2021; (ii) annual target performance bonus opportunity for 2021; and (iii) the grant date fair value of equity awards granted in 2021. The NEO pie chart reflects the averages of the various regular components of target total direct compensation for our NEOs other than our CEO and excludes the non-recurring cash signing bonus Ms. Appelhans received in connection with her appointment in 2021 as such bonus is not considered part of the ongoing annual target total direct compensation opportunity. Additionally, the NEO pie chart excludes 2021 equity grants for Mr. Carmona and Ms. Appelhans, as amounts granted to these NEOs in 2021 were not representative of their ongoing annual equity grants. Mr. Carmona received no equity in 2021 as he received a new hire grant in late 2020, and Ms. Appelhans received a new hire grant in August 2021, which was approximately two times the amount of equity it is anticipated she will receive on an annual basis going forward.



Compensation Philosophy and Objectives

Our executive compensation program is designed with the following objectives and philosophy:

- **Provide competitive compensation that enables us to attract and retain top performing talent who contribute to the company's long-term success.** We reward individuals fairly over time and seek to retain those individuals who continue to meet our high expectations.
- **Create a direct link between achievement of business plans and key objectives and employee compensation.** Our annual performance bonus awards are not earned unless pre-determined levels of performance are achieved against annual corporate objectives approved by our board of directors at the beginning of the year. Likewise, our stock option awards will not provide any realizable value unless our stock price increases and our RSU awards will not provide increased value unless there is an increase in the value of our shares, which benefits all stockholders.
- **Motivate employees to focus on the achievement of annual and long-term performance goals and to drive superior performance.** Our executive compensation program combines both short-term and long-term components in the proportions that we believe are the most appropriate to incentivize and reward our executive officers for achieving our corporate goals while minimizing incentives for excessive risk-taking or unethical conduct.
- **Align the interests of employees and investors through the use of long-term incentives while effectively managing dilution.** As long-term incentives are only a portion of our executive compensation packages, and because we actively predict and monitor our burn rate, we are able to effectively manage stockholder dilution.

For 2021, our executive compensation program philosophy remained largely unchanged from prior years as we believe it has been successful in attracting, retaining and motivating our employees. However, beginning in 2021, based in part on advice from our independent compensation consultant and in order to better manage stockholder dilution, enhance executive recruitment and retention, and more closely align with market practice, the compensation committee determined to deliver approximately 75% of each NEO's equity award in the form of stock options and 25% in the form of RSUs, rather than 100% in the form of stock options.

How We Determine Executive Compensation

Role of Our Compensation Committee and the Board of Directors

The compensation committee, which is comprised entirely of independent directors, is responsible for reviewing and overseeing our compensation policies, plans and programs and reviewing and approving the compensation of our NEOs and other executive officers (other than our CEO). Our board of directors, upon recommendation from the compensation committee, approves the compensation of our CEO.

Our compensation committee meets as often as deemed necessary to carry out its duties and responsibilities through regularly scheduled meetings and, if necessary, special meetings. The agenda for each compensation committee meeting is usually developed by members of our human resources department, with input from the Chairperson of the compensation committee, members of our legal department and CEO.

Our compensation committee has engaged Pay Governance, an independent compensation consultant, to provide guidance with respect to the development and implementation of our compensation programs.

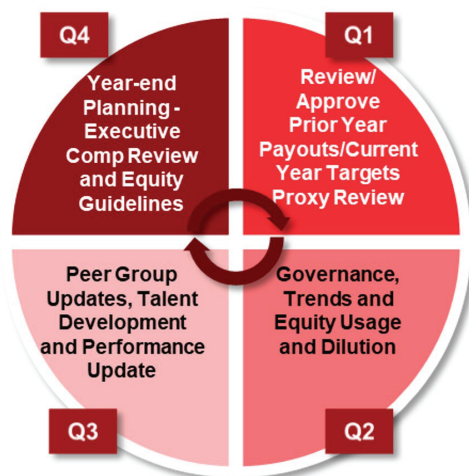
Role of Management

In making its executive compensation determinations, the compensation committee works with management, including our CEO. Our management assists the compensation committee by providing information on corporate and individual performance and management's perspective on compensation matters.

At the beginning of each year, our CEO reviews the performance of our other NEOs and executive officers, based on their contributions to achievement of corporate goals and their individual performance for the prior year. The compensation committee solicits and reviews our CEO's recommendations for base salary increases, annual performance bonuses, annual equity awards and any other compensation opportunities for our other NEOs and executive officers and considers our CEO's recommendations in determining such compensation.

In making his recommendations, our CEO receives input from our human resources department and reviews various sources of market compensation data provided by the independent compensation consultant to the compensation committee, as described below. While our CEO discusses his recommendations for the other executive officers with the compensation committee, he does not participate in the deliberations and recommendations to our board of directors concerning, or our board of directors' determination of, his own compensation.

Below are the highlights of the annual cycle our compensation committee follows in reviewing and making decisions with respect to our executive compensation program.



Role of the Independent Compensation Consultant

The compensation committee engages an independent compensation consultant each year to provide information, analysis and other advice relating to our executive compensation program and to assist the compensation committee in making annual compensation decisions. Since October 2020, Pay Governance has been engaged by the compensation committee as its compensation consultant to advise on executive compensation matters including:

- research, development and review of our compensation peer group and review and analysis of peer company and industry compensation data;
- advice regarding executive officer compensation, including base salaries, performance-based bonuses and long-term equity compensation and similar advice regarding non-employee director compensation;
- support in addressing changes in trends and best practices relating to executive compensation, incentive and equity program design and governance, in order to help inform the compensation committee's compensation decisions;
- review and input on the "Executive Compensation" section of our proxy statement; and
- support on other compensation matters as requested throughout the year.

Pay Governance reports directly to the compensation committee, which maintains the authority to direct Pay Governance's work and engagement. Pay Governance interacts with management to gain access to company information that is required to perform services and to understand the culture and policies of the organization. Pay Governance attends compensation committee meetings, and the compensation committee and Pay Governance meet in executive session with no members of management present, as needed, to address various compensation matters, including deliberations regarding our CEO's compensation.

Our compensation committee performs an annual assessment to determine whether its compensation consultant is independent from management. In assessing Pay Governance's independence in 2021, the compensation committee considered that Pay Governance is only engaged by, takes direction from, and reports to, the compensation committee for such services and, accordingly, only the compensation committee has the right to terminate or replace Pay Governance as its compensation consultant at any time. The compensation committee also analyzed whether the work of Pay Governance as a compensation consultant with respect to executive and director compensation raised any conflict of interest, taking into consideration the following factors:

- the provision of other services, if any, to our company by Pay Governance and its affiliates;
- the amount of fees we paid to Pay Governance and its affiliates as a percentage of Pay Governance's total revenue;
- Pay Governance's policies and procedures that are designed to prevent conflicts of interest;
- any business or personal relationship of the individual compensation advisors with any compensation committee member;
- any business or personal relationship of Pay Governance or the individual compensation advisors employed by it with any executive officer of our company; and
- any shares of our company common stock owned by Pay Governance or the individual compensation advisors employed by it.

In 2021, the compensation committee determined, based on its analysis of the above factors, that Pay Governance is independent under Nasdaq listing standards and relevant SEC rules and that no conflict of interest has arisen as a result of the work performed by Pay Governance.

Competitive Assessment of Compensation — Peer Companies and Market Data

Because we aim to attract and retain the most highly qualified executive officers in an extremely competitive market, the compensation committee believes that it is important when making its compensation decisions to be informed as to the current compensation levels and practices of comparable public companies with which we compete for top talent. To this end, the compensation committee reviews and considers market data for each executive officer’s position, compiled by Pay Governance as described below.

2021 Peer Group. The compensation committee uses a peer group and other market data to provide context for its executive compensation decision-making. Each year, Pay Governance evaluates the composition of our peer group to ensure it appropriately reflects our growth and market capitalization and the consolidation in our industry. In 2020, the compensation committee considered companies meeting the following selection criteria:

- early phase biopharmaceutical companies with similar or relevant biotech focuses and business strategy;
- public less than five years; and
- comparable size in terms of market capitalization and employee headcount.

Based on these criteria, for our 2021 compensation decisions, our compensation committee approved the peer group consisting of the 17 companies listed below.

2021 Peer Group List

Alector, Inc.	Editas Medicine, Inc.	TCR2 Therapeutics Inc.
Allogene Therapeutics, Inc.	Homology Medicines, Inc.	Translate Bio, Inc.
AnaptysBio, Inc.	Intellia Therapeutics, Inc.	Voyager Therapeutics, Inc.
AVROBIO, Inc.	Precision BioSciences, Inc.	Wave Life Sciences Ltd.
Denali Therapeutics Inc.	REGENXBIO Inc.	Xencor, Inc.
Dicerna Pharmaceuticals, Inc.	Sangamo Therapeutics, Inc.	

2021 Market Data. In late 2020 and early 2021, Pay Governance completed an assessment of executive compensation based on our 2021 peer group to inform the compensation committee’s determinations of executive compensation for 2021 and to ensure that our executive compensation program, as a whole, is positioned competitively to attract and retain the highest caliber of executive officers. The assessment used market data that was compiled from multiple sources, including: (i) data from the Radford Global Life Sciences Survey that includes summary data reported by most peer companies listed above or broader biotech survey participants; and (ii) the 2021 peer group companies’ publicly disclosed information. Generally, peer data (from proxy disclosures or the Radford survey) are used in establishing market data reference points, and the general biotech data from the Radford survey is used when there is a lack of peer data for an executive officer’s position.

While the compensation committee considers market data useful for purposes of comparing our executive compensation against the competitive market, there are various factors that the committee considers when making executive compensation decisions. Further, the compensation committee does not target a specific percentile but typically reviews the 25th, 50th and 75th percentiles of relevant market data for setting the level of compensation for our executive officers as it believes that over-reliance on benchmarking can result in compensation that is not reflective of the unique nature of a given role or the specific performance of a given individual.

2022 Peer Group. Based on the review of an analysis prepared by Pay Governance, in August 2021 the compensation committee approved the updated compensation peer group below. In making changes to the peer group, the compensation committee continued to take into account the factors listed above in light of the evolution of the company and the increase in the company’s market capitalization.

2022 Peer Group List

Alector, Inc.	Allogene Therapeutics, Inc.	AnaptysBio, Inc.
Atara Biotherapeutics, Inc.*	Denali Therapeutics Inc.	Dicerna Pharmaceuticals, Inc.
Editas Medicine, Inc.	Fate Therapeutics, Inc.*	IGM Biosciences, Inc.*
Intellia Therapeutics, Inc.	Iovance Biotherapeutics, Inc.*	Precision BioSciences, Inc.
REGENXBIO Inc.	Relay Therapeutics, Inc.*	Rocket Pharmaceuticals, Inc.*
Sana Biotechnology, Inc.*	Sangamo Therapeutics, Inc.	TCR2 Therapeutics Inc.
Xencor, Inc.		

* added for 2022

Factors Used in Determining Executive Compensation

The compensation committee's pay decisions are not driven by a particular target level of compensation based on market data, nor does the compensation committee otherwise employ a formulaic approach to setting executive pay. When reviewing and approving, or recommending to the board of directors, as applicable, the amount, form and mix of each compensation element and the target total direct compensation opportunity for our executive officers, the compensation committee considers multiple relevant factors as reflected in the figure below.



Advisory Vote on Executive Compensation and Stockholder Engagement

2022 is the first year that the company is required under applicable law to hold a say-on-pay advisory vote on executive compensation. Accordingly, at the Annual Meeting, we are providing stockholders with the opportunity to cast a non-binding, advisory vote on a proposal to approve the compensation of our NEOs for the year ended December 31, 2021. Our board of directors and our compensation committee value the views of our stockholders and will consider the outcome of our say-on-pay proposals and input received from our stockholders on our executive compensation program when making future compensation decisions for our NEOs. Please see the section of this proxy statement titled "Proposal No. 3-Approval, on a Non-Binding, Advisory Basis, of the Compensation of Our Named Executive Officers for the Year Ended December 31, 2021" for additional detail.

We also engage with our stockholders when they have topics of particular interest, which may include executive compensation related matters. Stockholder feedback is reported to our board of directors throughout the year.

Key Components and Design of the Executive Compensation Program

Total Direct Compensation

Our compensation program focuses on target total direct compensation, which consists of base salary, target performance bonus opportunity (which, together with base salary, we refer to as target total cash compensation), and the value of long-term incentive awards.



The table below captioned “Components of Total Direct Compensation” details the key features of each primary component of our executive compensation program as well as the compensation objectives we wish to achieve with such component, and describes how such component links to stockholder value.

The compensation committee takes a holistic approach to compensation and seeks to ensure that the aggregate level of pay, across all pay elements, is meeting the company’s desired compensation objectives for each executive officer. The compensation committee does not have any formal policies regarding the percentage allocation between short-term and long-term, or fixed and variable, compensation elements. Instead, the compensation committee aims to establish a total compensation program for each NEO that is a mix of short-term and long-term incentive compensation, and cash and non-cash compensation, which the committee believes, based on its experience and judgment and informed by market data, is appropriate to achieve the goals of our executive compensation program and our corporate goals.

Because we believe it is important to our success to pursue long-term corporate objectives, to avoid excessive risk-taking, and to preserve our cash resources, the majority of the NEOs’ total direct compensation is comprised of “at-risk” compensation, consisting of performance-based bonus opportunities and long-term incentive awards, which directly align the executive officers’ incentives with the interests of our stockholders. This allocation between “at-risk” and fixed compensation is consistent with our pay-for-performance philosophy.

Components of Total Direct Compensation

Component		Key Features	Objectives	Link to Performance and Stockholder Value
Short-Term Cash Compensation	Base Salary	<ul style="list-style-type: none"> Fixed level of cash compensation No amount is contractually guaranteed 	Establishes a market competitive and internally appropriate level of fixed cash compensation to provide financial stability and to attract and retain top talent	Fixed cash compensation rewards scope of responsibility, experience and individual performance
	Performance Bonus Award	<ul style="list-style-type: none"> Cash compensation under the performance bonus plan “At-risk” because it is dependent upon achievement of pre-established corporate performance goals and, for executive officers other than our CEO, personal performance objectives 	Serves as a key compensation vehicle for rewarding annual results, based on performance goals set at the beginning of each year	Promotes strong short-term business and clinical results by rewarding value drivers, without creating an incentive to take excessive risk
Long-Term Equity Incentives	Stock Options (~75% in LTI mix)	<ul style="list-style-type: none"> “At-risk” long-term incentives that realize value through sustained long-term appreciation of our share price Stock options and RSUs generally vest over a 4-year period subject to executive officer’s continued service with us; stock option exercise prices are equal to the fair market value of our shares on date of grant (i.e., closing price on the Nasdaq Global Select Market) 	Stock options provide value directly from stock price appreciation and the NEOs do not realize any value from stock options unless our stock price increases over time; strong alignment with stockholder value creation	Annual grant level is set based on market assessment and individual performance, while the ultimate vesting value is based on stock price appreciation over time, which links to stockholder value
	RSUs (~25% in LTI mix)		RSUs provide retention value at grant and further alignment with stockholder value creation as the value of RSUs increases as our stock price increases	

Base Salary

We pay base salaries to our NEOs as the fixed portion of their compensation to reward them for their scope of responsibility, experience and individual performance, and to attract and retain top-performing individuals. Typically, base salary amounts are reviewed annually to determine if an adjustment is appropriate to reflect the growth and stage of development of our company, the NEO’s performance and increased experience, any changes in roles and responsibilities, market data and other factors described in “Factors

Used in Determining Executive Compensation” above. Annual adjustments to base salary, if any, are generally effective by March of each year. Effective in March 2021, the compensation committee approved merit base salary increases for 2021 for each NEO other than Mr. Carmona, who joined our company in October 2020, and Ms. Appelhans, who joined our company in August 2021, as set forth in the table below.

<u>Name</u>	<u>2020 Base Salary</u>	<u>2021 Base Salary</u>	<u>Change (%)</u>
Pablo J. Cagnoni, M.D.	\$585,000	\$600,000	2.6%
Jose Carmona	\$450,000	\$450,000	—
Dannielle Appelhans	—	\$450,000	—
Maiken Keson-Brookes	\$400,000	\$416,000	4.0%
Laurence Turka, M.D.	\$400,000	\$425,026 ⁽¹⁾	6.3%

(1) In connection with his promotion to Head of Research & Translational Medicine, Dr. Turka’s base salary increased to \$464,987, effective November 2021.

2021 Performance Bonus Plan

At the time of hire, the target annual performance bonus is determined for each of our NEOs, and, at the beginning of each year, the compensation committee reviews and, if appropriate, adjusts the target annual performance bonuses for each such individual. In making its determinations, the compensation committee considers the NEO’s performance, any changes to roles and responsibilities, market data and other factors described in “Factors Used in Determining Executive Compensation” above. For 2021, our compensation committee maintained the target bonus for our CEO at 55% of salary and the target bonus for our other NEOs at 40% of salary, consistent with 2020.

At the beginning of each year, our board of directors, in consultation with our CEO, sets the broad-based corporate objectives intended to be the most significant drivers of our short-term and long-term success. These are then used to establish the criteria for the funding of our annual performance bonus plan for that year. For NEOs other than our CEO, these objectives are also designed to inform their individual performance goals. As described further below, 100% of our CEO’s bonus is tied to achievement of corporate objectives, since our CEO has ultimate operational responsibility for the overall performance of the company. For each other NEO, 75% of their bonus is tied to achievement of corporate objectives and 25% is tied to individual performance.

Following the end of the year in which the corporate performance objectives are established, the compensation committee evaluates our actual performance and overall success in achieving these objectives and determines the total percentage achievement level with respect to our corporate objectives. For each NEO other than our CEO, the compensation committee also evaluates (with input from our CEO) such NEO’s individual achievements towards meeting these goals and determines the total percentage achievement level with respect to such individual’s performance.

Corporate Performance

Bonus plan criteria for 2021 focused on the following key corporate objectives:

- Deliver clinical data
- Achieve development and operational goals
- Build our pipeline
- Maintain financial stability

For each of these corporate objectives, the board of directors also established measurement criteria for assessing performance in terms of what achievements would meet expectations or exceed expectations.

The corporate objectives and measurement criteria established by the board of directors for the 2021 performance bonus plan are described in the table below.

Corporate Objective	Weighting	Measurement Criteria		Bonus Pool Funding
		100% Achievement	Actual Achievement	
Deliver clinical data	45%	<ul style="list-style-type: none"> Achieve either recommended Phase 2 dose (RP2D) in solid tumor monotherapy arm of RTX-240 clinical trial or achieve RP2D in AML arm of RTX-240 clinical trial (data dependent) Complete Type-C meeting with FDA and determine path forward for PD-1 combination arm of RTX-240 clinical trial Submit for FDA approval, and receive clearance of, IND for RTX-224 Achieve RP2D for RTX-321 monotherapy trial 	<ul style="list-style-type: none"> RP2D goals for solid tumor and AML arms of RTX-240 clinical trial partially achieved (due to addition of higher dose cohort) Completed Type-C meeting with FDA and determined path forward for PD-1 combination arm of RTX-240 clinical trial Received clearance of IND for RTX-224 from the FDA Achieved the following stretch goals: <ul style="list-style-type: none"> Initiated PD-1 combination arm of RTX-240 clinical trial Initiated clinical trial for RTX-224 	40%
Achieve development and operational goals	25%	<ul style="list-style-type: none"> Develop, transfer and prepare 200L IND-A for chosen asset to enable 2022 supply Deliver average productivity output target for RTX-240 and RTX-321 Deliver average productivity target in final pilot plant transferred process (200L scale) Reduce drug product disposition average turnaround time Achieve Quality Health Index equal to or greater than 70% 	<ul style="list-style-type: none"> Fully achieved IND-A goal Fully achieved all manufacturing process development, optimization, productivity and quality objectives Achieved the following stretch goals: <ul style="list-style-type: none"> Met stretch RCT productivity target Applied new analytical methods to process development approach Met stretch quality index target 	40%
Build our pipeline	15%	<ul style="list-style-type: none"> Execute preclinical goal for T1D program Execute preclinical goal for next aAPC program Establish a mouse or non-human primate model 	<ul style="list-style-type: none"> Preclinical goals for autoimmune and aAPC programs mostly achieved Established non-human primate model Partially achieved stretch goal pertaining to plan development and initiation of preclinical studies for next RTX program Fully achieved stretch goal pertaining to the evaluation of the scientific validity and technical feasibility of loadable human leukocyte antigen (HLA) 	20%

Corporate Objective	Weighting	Measurement Criteria		Bonus Pool Funding
		100% Achievement	Actual Achievement	
Maintain financial stability and achievement of additional financial and organizational goals	15%	<ul style="list-style-type: none"> Maintain sufficient funds to execute on 2022 business plan Execute on business development objectives 	<ul style="list-style-type: none"> Fully achieved funds objective Successfully completed an equity financing Substantially completed, on schedule, Quality Control expansion design, build and commission For the second year in a row, Rubius named among the “Top Places to Work” by the Boston Globe and one of the top three “Best Places to Work” by the Providence Business News Made five scientific presentations and hosted Virtual Preclinical and Platform Day 	10%
Total				110%

Following the end of the year, after assessing the actual achievement of the enumerated corporate objectives and stretch goals, and taking into consideration additional achievements beyond the 2021 stated goals, the compensation committee recommended to the board of directors, and the board of directors approved, funding the bonus pool for the 2021 plan year at 110% of target.

Individual Performance

Since our CEO has ultimate operational responsibility for the overall performance of the company, there is no individual performance component to his bonus and 100% of his bonus is tied to achievement of corporate objectives. For each other NEO, 75% of their bonus is tied to achievement of corporate objectives and 25% is tied to individual performance. The compensation committee does not set specific performance objectives for individual NEOs. Rather, each NEO is responsible for contributing to the above-described corporate objectives, individually and as part of the leadership team. In January 2022, the compensation committee assessed the performance of individual NEOs other than the CEO for 2021 and assigned an individual performance factor for each such NEO. This assessment by the compensation committee was informed by an evaluation conducted by our CEO of the performance of each of the other NEOs for the year.

The individual performance assessments for each of our NEOs, other than our CEO, are described in the table below:

Name	2021 Individual Performance Factor	2021 Individual Achievements
Jose Carmona	115%	Achievement of goals further building financial stability.
Dannielle Appelhans	100%	Joined in August 2021; executed on numerous goals related to development and operations.
Maiken Keson-Brookes . . .	115%	Achievement of corporate governance, IP and disclosure related goals.
Laurence Turka, M.D.	115%	Executed on development strategy across the platform.

2021 Performance Bonus Payout

The NEO's individual bonus payment for 2021 is summarized in the table below.

Name and Principal Position	Base Salary (\$)	Target Bonus (%)	Target Bonus (\$)	Target Bonus – Corporate Component (\$)⁽¹⁾	Actual Bonus – Corporate Multiplier (%)	Target Bonus – Individual Component (\$)⁽¹⁾	Actual Bonus – Individual Multiplier (%)	Actual Payout (\$)
Pablo J. Cagnoni, M.D. . . . <i>President and Chief Executive Officer</i>	\$600,000	55%	\$330,000	\$330,000	110%	—	—	\$363,000
Jose Carmona <i>Chief Financial Officer</i>	\$450,000	40%	\$180,000	\$135,000	110%	\$45,000	115%	\$200,250
Dannielle Appelhans <i>Chief Operating Officer</i>	\$450,000	40%	\$180,000	\$135,000	110%	\$45,000	100%	\$ 76,870 ⁽²⁾
Maiken Keson-Brookes . . . <i>Chief Legal Officer and Corporate Secretary</i>	\$416,000	40%	\$166,400	\$124,800	110%	\$41,600	115%	\$185,120
Laurence Turka, M.D. <i>Chief Scientific Officer and Head of Research & Translational Medicine</i>	\$425,026 ⁽³⁾	40%	\$170,010	\$127,508	110%	\$42,503	115%	\$189,136

- (1) For all NEOs other than our CEO, 75% of their bonus is tied to achievement of corporate objectives and 25% is tied to individual performance.
- (2) Bonus amount shown for Ms. Appelhans reflects her annual performance bonus for 2021 prorated for the period of her employment in 2021 from August 9, 2021 through December 31, 2021.
- (3) Dr. Turka's bonus payment was calculated based on his annual salary as of March 1, 2021 and does not take into account his salary increase which became effective in November 2021 in connection with his promotion to Head of Research and Translational Medicine.

Equity Compensation Arrangements

We view long-term incentive compensation in the form of equity awards as a critical element of our executive compensation program. The value of equity awards is based on stock price appreciation over time, which incentivizes our executive officers to achieve long-term corporate goals and links to stockholder value. Awards are reviewed and generally granted annually, early in the year, as well as at time of hire or promotion based on individual performance, any changes in roles and responsibilities, market data and the other factors described in "Factors Used in Determining Executive Compensation" above. Approximately 75% of each NEO's equity award is in the form of stock options and 25% is in the form of RSUs. Stock options and RSUs generally vest over a four year period subject to the executive officer's continued service with us. Stock option exercise prices are equal to the fair market value of our common stock on the date of grant (i.e., closing price on the Nasdaq Global Select Market).

Target Equity Compensation and Share Amount Determinations

In determining the appropriate size of 2021 equity award grants, the compensation committee (and the board of directors, with respect to Dr. Cagnoni) aimed to balance the need to manage overall dilution to our stockholders, maintain equity opportunities competitive with the market and serve the retention and incentive purposes of the awards.

Equity awards to our NEOs are based on a targeted number of shares. Equity grant guidelines are reviewed and set annually based on market long-term incentive values, market percentage of our common shares outstanding and equity pool constraints. The compensation committee understands that this process can result in the actual reported grant date fair value of an award being higher or lower than the intended value approved by the compensation committee, and has considered, in consultation with Pay Governance, various other approaches to granting equity awards, each of which have advantages and disadvantages. Ultimately, the compensation committee determined that our current practice, which has been used historically by the compensation committee, is the most appropriate for the company at this time.

The exercise price of each stock option is equal to the closing price of our common stock on the Nasdaq Global Select Market on the date of grant. Shares subject to stock option awards generally vest over four years, with 25% vesting on the one-year anniversary of the grant date and the remainder vesting in equal quarterly installments thereafter over the remaining 12 quarters. RSUs generally vest over four years in equal annual installments.

Form and Mix of Equity Awards.

Prior to 2021, the equity award grants to our NEOs had consisted entirely of stock options. Beginning in 2021, based in part on advice from our independent compensation consultant, the compensation committee determined to deliver approximately 75% of each NEO’s equity award in the form of stock options and 25% in the form of RSUs.

In making its decision to provide some portion of the annual equity grant in the form of RSUs, the compensation committee considered a number of different factors, including our annual burn rate, overall dilution, share price volatility, peer company practice and retentive value. RSUs are less dilutive than stock options as fewer shares are required to deliver an equivalent grant date value. Additionally, they are an effective retention tool as they are subject to annual vesting over four years and always contain some intrinsic value. The following table sets forth the number of shares of common stock underlying stock options and the number of RSUs granted to our NEOs in 2021.

Name	Number of Shares Underlying Stock Options	Number of RSUs
Pablo J. Cagnoni, M.D.	375,000	85,000
Jose Carmona ⁽¹⁾	—	—
Dannielle Appelhans ⁽²⁾	150,000	50,000
Maiken Keson-Brookes	142,500	32,300
Laurence Turka, M.D.	131,250	29,750

- (1) Mr. Carmona received no equity in 2021 as he received a new hire grant in late 2020.
- (2) Ms. Appelhans joined our company in August 2021 and the amounts included in the table represent her new hire grant.

Employee Benefits

401(k) Savings 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. We provide a matching contribution of 50% of employee contributions up to 6% of eligible compensation, with a maximum of \$8,000 per year. Matching contributions vest after one year of service. 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.

Health and Welfare Benefits. All of our full-time employees, including our executive officers, are eligible to participate in certain medical, disability and life insurance benefit programs offered by us. We pay the premiums for term life insurance and long-term disability for all of our employees, including our executive officers. We also provide all employees, including executive officers, with paid time off benefits including, vacation, sick time and holidays. We do not sponsor any qualified or non-qualified defined benefit plans for any of our employees or executives.

Nonqualified Deferred Compensation. During the year ended December 31, 2021, the NEOs did not contribute to, or earn any amounts with respect to, any defined contribution or other plan sponsored by us that provides for the deferral of compensation on a basis that is not tax-qualified.

Severance Benefits

Executive officers are eligible to receive severance benefits in the event of certain qualifying terminations of employment, including termination without cause or for good reason, as described below under the headings “Employment Arrangements with our Named Executive Officers” and “Potential Payments upon Termination or Change in Control.”

The compensation committee believes that the severance benefits provided to our executive officers are appropriate in light of the post-employment compensation protections available to similarly-situated executive officers at companies in our compensation peer group and are an important component of each executive officer’s overall compensation as they help us to attract and retain our key executives who could have other job alternatives that may appear to them to be more attractive absent these protections.

In addition, the compensation committee believes it is important from a retention perspective to provide enhanced severance benefits in connection with certain employment terminations occurring in connection with a change in control in order to encourage our executive officers to remain employed with us during an important time when their prospects for continued employment following the transaction are often uncertain. The primary purpose of these arrangements is to mitigate the distraction and loss of key executive officers that may occur in connection with fundamental corporate changes. Severance benefits serve to keep our most senior executive officers focused on pursuing potential corporate transactions that are in the best interests of our stockholders regardless of whether those transactions may result in their own job loss and encourage the executives responsible for negotiating potential transactions to do so with independence and objectivity. We do not provide any tax gross up payments on severance or change in control benefits.

2021 Compensation Decisions for Our Named Executive Officers

General Approach

In making compensation decisions for 2021, the compensation committee considered the factors discussed in “Factors Used in Determining Executive Compensation” above and the compensation committee’s specific compensation objectives for 2021. Our compensation committee did not use a formula or assign a particular weight to any one factor in determining each NEO’s target total direct compensation. Rather, our compensation committee’s determination of the target total direct compensation, and fixed and “at-risk” pay opportunities, was an individualized decision for each NEO, informed by market data, recommendations from Pay Governance and management and independent judgment.

Summary of 2021 Compensation Decisions

Individual NEO Compensation Decisions

Below are summaries, for each NEO individually, of the compensation committee’s decisions about 2021 target total direct compensation and the changes from each NEO’s 2020 target total direct compensation. As described above, when making 2021 compensation decisions, the compensation committee considered the factors set forth in the section titled “Factors Used in Determining Executive Compensation” and the compensation committee’s specific compensation objectives for 2021. The footnotes to the tables include the actual performance bonus paid to each of the NEOs for 2021 and how that actual bonus compared to each NEO’s target bonus.

Pablo J. Cagnoni, M.D., President and Chief Executive Officer

	2020 Pay	2021 Pay	Change (%)
Target Total Cash Compensation (\$)	\$906,750	\$930,000	2.6%
Base Salary ⁽¹⁾	\$585,000	\$600,000	
Target Performance Bonus ⁽²⁾	\$321,750	\$330,000	
Target Equity Compensation (# of shares)	500,000	460,000	—
Options	500,000	375,000	
RSUs	—	85,000	

(1) Represents annual base salary for the applicable year. 2021 base salary became effective in March 2021.

(2) The 2021 amount reflects a target performance bonus of 55% of base salary, unchanged from the target performance bonus percentage from 2020. The actual 2021 performance bonus paid was \$363,000, reflecting 110% of the target performance bonus, based entirely on the 2021 bonus pool funding percentage of 110%.

Jose Carmona, Chief Financial Officer

	2020 Pay	2021 Pay	Change (%)
Target Total Cash Compensation (\$)	\$630,000	\$630,000	0%
Base Salary ⁽¹⁾	\$450,000	\$450,000	
Target Performance Bonus ⁽²⁾	\$180,000	\$180,000	
Target Equity Compensation (# of shares)⁽³⁾	400,000	—	—
Options	400,000	—	
RSUs	—	—	

(1) Represents annual base salary for the applicable year. As Mr. Carmona joined our company as Chief Financial Officer in October 2020, his base salary remained unchanged for 2021.

(2) The 2021 amount reflects a target performance bonus of 40% of base salary, unchanged from the target performance bonus percentage from 2020. The actual 2021 performance bonus paid was \$200,250, reflecting 111% of the target performance bonus, based on the 2021 bonus pool funding percentage of 110% and Mr. Carmona’s individual contributions to achieving our corporate objectives for 2021. The non-recurring cash signing bonus Mr. Carmona received in connection with his appointment in 2020 is not included in the 2020 bonus amount as such bonus is not considered part of his ongoing annual target total direct compensation opportunity.

(3) Mr. Carmona received no equity in 2021 as he received a new hire grant in late 2020. The equity amount shown for Mr. Carmona for 2020 reflects a new hire award, and is thus not representative of the annual equity grants he is anticipated to receive going forward. New hire awards generally represent approximately two times the amount of equity executive officers receive on an ongoing annual basis.

Dannielle Appelhans, Chief Operating Officer

	2020 Pay ⁽¹⁾	2021 Pay	Change (%)
Target Total Cash Compensation (\$)	—	\$630,000	—
Base Salary ⁽²⁾	—	\$450,000	
Target Performance Bonus ⁽³⁾	—	\$180,000	
Target Equity Compensation (# of shares)⁽⁴⁾	—	200,000	—
Options	—	150,000	
RSUs	—	50,000	

- (1) Ms. Appelhans joined our company as Chief Operating Officer in August 2021.
- (2) Represents annual base salary for the applicable year.
- (3) The 2021 amount reflects a target performance bonus of 40% of base salary. The actual 2021 performance bonus paid was \$76,870, reflecting 108% of the target performance bonus, based on the 2021 bonus pool funding percentage of 110% and Ms. Appelhans individual contributions to achieving our corporate objectives for 2021, and prorated for the period of her employment in 2021 from August 9, 2021 through December 31, 2021. The non-recurring cash signing bonus Ms. Appelhans received in connection with her appointment in 2021 is not included in the 2021 bonus amount as such bonus is not considered part of her ongoing annual target total direct compensation opportunity.
- (4) The equity amount shown for Ms. Appelhans for 2021 reflects a new hire award, and is thus not representative of the annual equity grants she is anticipated to receive going forward. New hire awards generally represent approximately two times the amount of equity executive officers receive on an ongoing annual basis.

Maiken Keson-Brookes, Chief Legal Officer and Corporate Secretary

	2020 Pay	2021 Pay	Change (%)
Target Total Cash Compensation (\$)	\$560,000	\$582,400	4.0%
Base Salary ⁽¹⁾	\$400,000	\$416,000	
Target Performance Bonus ⁽²⁾	\$160,000	\$166,400	
Target Equity Compensation⁽³⁾ (# of shares)	—	174,800	—
Options	—	142,500	
RSUs	—	32,300	

- (1) Represents annual base salary for the applicable year. 2021 base salary became effective in March 2021.
- (2) The 2021 amount reflects a target performance bonus of 40% of base salary, unchanged from the target performance bonus percentage from 2020. The actual 2021 performance bonus paid was \$185,120, reflecting 111% of the target performance bonus, based on the 2021 bonus pool funding percentage of 110% and Ms. Keson-Brookes' individual contributions to achieving our corporate objectives for 2021.
- (3) Ms. Keson-Brookes received no equity in 2020 as she received a new hire grant in late 2019.

Laurence Turka, M.D., Chief Scientific Officer and Head of Research and Translational Medicine

	2020 Pay	2021 Pay	Change (%)
Target Total Cash Compensation (\$)	\$560,000	\$595,036	6.3%
Base Salary ⁽¹⁾	\$400,000	\$425,026	
Target Performance Bonus ⁽²⁾	\$160,000	\$170,010	
Target Equity Compensation (# of shares)⁽³⁾	350,000	161,000	—
Options	350,000	131,250	
RSUs	—	29,750	

- (1) Represents annual base salary for the applicable year. 2021 base salary became effective in March 2021. Amount shown does not reflect Dr. Turka's increase in base salary to \$464,987, which became effective in November 2021 in connection with his promotion to Head of Research and Translational Medicine.
- (2) The 2021 amount reflects a target performance bonus of 40% of base salary, unchanged from the target performance bonus percentage from 2020. The actual 2021 performance bonus paid was \$189,136, reflecting 111% of the target performance bonus, based on the 2021 bonus pool funding percentage of 110% and Dr. Turka's individual contributions to achieving our corporate objectives for 2021. The non-recurring cash signing bonus Dr. Turka received in connection with his appointment in 2020 is not included in the 2020 bonus amount as such bonus is not considered part of his ongoing annual target total direct compensation opportunity.
- (3) The equity amount shown for Dr. Turka for 2020 reflects a new hire award, and is thus not representative of the annual equity grants he is anticipated to receive going forward. New hire awards generally represent approximately two times the amount of equity executive officers receive on an ongoing annual basis.

Additional Compensation Matters

Timing of Equity Grants

We do not time grants either to take advantage of a depressed stock price or in anticipation of an increase in stock price and have limited the amount of discretion with respect to the timing of awards. We generally make awards only on pre-determined dates to ensure that awards cannot be timed to take advantage of material non-public information.

Clawback Policy

In December 2021, our board of directors adopted a policy for recoupment of incentive compensation, or a clawback policy. In the event we are required to materially restate our financial statements because of noncompliance with any financial reporting requirements under federal securities laws, and such noncompliance is due to the misconduct of an executive officer covered by the policy, we may recover the amount of any cash or equity-based incentive compensation received by him or her during the three-year period preceding the publication of the restatement that is attributable to the erroneously reported results. The executive officers covered by the policy include our current or former executive officers who are, or were at the time of the relevant misconduct, (i) subject to the reporting requirements of Section 16 of the Exchange Act or (ii) direct reports of our Chief Executive Officer. The misconduct covered by the policy includes embezzlement, fraud, willful misconduct and breach of fiduciary duty, as determined by board of directors or the compensation committee in its sole discretion.

Further, in the event that the board of directors or the compensation committee, in its sole discretion, determines that an executive officer covered by the policy engages in any improper conduct that causes material financial, operational or reputational harm to the company or its affiliates, we may recover the amount of any cash or equity-based incentive compensation received by him or her during the three-year period preceding the discovery of such improper conduct that is attributable to such improper conduct.

In addition, as a public company, if we are required to restate our financial results due to our material noncompliance with any financial reporting requirements under the federal securities laws as a result of misconduct, our CEO and CFO may be legally required to reimburse our company for any bonus or other incentive-based or equity-based compensation they receive in accordance with the provisions of Section 304 of the Sarbanes-Oxley Act of 2002.

Accounting and Tax Considerations

Deductibility of Executive Compensation. Under Section 162(m) of the Code, or Section 162(m), compensation paid to each of the company's "covered employees" that exceeds \$1 million per taxable year is generally non-deductible for tax purposes unless the compensation qualifies for certain grandfathered exceptions (including the "performance-based compensation" exception) for certain compensation paid pursuant to a written binding contract in effect on November 2, 2017 and not materially modified on or after such date.

Although the compensation committee will continue to consider tax implications as one factor in determining executive compensation, the compensation committee also looks at other factors in making its decisions and retains the flexibility to provide compensation for the company's NEOs in a manner consistent with the goals of the company's executive compensation program and the best interests of the company and its stockholders, which may include providing for compensation that is not deductible by the company due to the deduction limit under Section 162(m). The compensation committee also retains the flexibility to modify compensation that was initially intended to be exempt from the deduction limit under Section 162(m) if it determines that such modifications are consistent with the company's business needs.

Section 409A of the Internal Revenue Code. Section 409A of the Code, or Section 409A, imposes additional significant taxes in the event that an executive officer, director or service provider receives "deferred compensation" that does not satisfy the requirements of Section 409A. Although we do not maintain a traditional nonqualified deferred compensation plan, Section 409A does apply to certain severance arrangements, bonus arrangements and equity awards. We structure all our severance arrangements, bonus arrangements and equity awards in a manner to either avoid the application of Section 409A or, to the extent doing so is not possible, to comply with the applicable requirements of Section 409A.

Accounting for Stock-Based Compensation. Under ASC 718, the company is required to estimate and record an expense for each award of equity compensation (including stock options and RSUs) over the vesting period of the award. We record share-based compensation expense on an ongoing basis according to ASC 718. The compensation committee has considered, and may in the future consider, the grant of performance-based or other types of stock awards to executive officers in lieu of or in addition to stock option and time-based RSU grants in light of the accounting impact of ASC 718 and other considerations.

Risk Assessment Concerning Compensation Practices and Policies

The compensation committee annually reviews the company's compensation policies and practices to assess whether they encourage employees to take inappropriate risks. After reviewing each of the company's compensation plans, and the checks and balances built into, and oversight of, each plan, the compensation committee has determined that our compensation policies and practices for our employees are not reasonably likely to have a material adverse effect on our company as a whole. The compensation committee believes that the design and mix of the elements of executive compensation incentivize our executive officers to remain focused on both short-term and long-term strategic goals without encouraging excessive or unnecessary risk taking. The mix of short-term compensation (in the form of salary and annual performance bonus, if any), and long-term compensation (in the form of stock options and RSUs) prevents undue focus on short-term results and helps align the interests of the company's executive officers with the interests of our stockholders, consistent with our pay for performance philosophy.

Summary Compensation Table

The following table presents the compensation awarded to, earned by or paid to each of our NEOs for the years indicated.

Name and Principal Position	Year	Salary (\$)	Bonus (\$) ⁽⁵⁾	Stock Awards (\$) ⁽⁶⁾	Option Awards (\$) ⁽⁷⁾	Non-Equity Incentive Plan Compensation (\$) ⁽⁸⁾	All Other Compensation (\$) ⁽⁹⁾	Total (\$)
Pablo J. Cagnoni, M.D. <i>President and Chief Executive Officer</i>	2021	597,528	—	1,017,450	2,996,738	363,000	10,918	4,985,634
	2020	579,167	410,231	—	2,437,850	—	16,621	3,443,869
	2019	547,500	211,750	—	935,250	—	26,630	1,721,130
Jose Carmona ⁽¹⁾ <i>Chief Financial Officer</i>	2021	450,000	—	—	—	200,250	8,945	659,195
Dannielle Appelhans ⁽²⁾ <i>Chief Operating Officer</i>	2021	177,404	130,000	1,086,000	2,185,155	76,870	38,706	3,694,135
Maiken Keson-Brookes ⁽³⁾ <i>Chief Legal Officer and Corporate Secretary</i>	2021	413,333	—	386,631	1,138,760	185,120	9,290	2,133,134
	2020	400,000	202,000	—	—	—	9,290	611,290
	2019	50,000	140,000	—	1,299,875	—	45	1,489,920
Laurence Turka, M.D. ⁽⁴⁾ <i>Chief Scientific Officer and Head of Research and Translational Medicine</i>	2021	425,850	—	356,108	1,048,858	189,136	11,564	2,031,516
	2020	380,513	312,693	—	1,706,495	—	11,731	2,411,432

- (1) Mr. Carmona commenced employment with us on October 1, 2020. His annual base salary for 2020 was \$450,000.
- (2) Ms. Appelhans commenced employment with us on August 9, 2021. Her annual base salary for 2021 was \$450,000.
- (3) Ms. Keson-Brookes commenced employment with us on November 18, 2019. Her annual base salary for 2019 was \$400,000.
- (4) Dr. Turka commenced employment with us on January 21, 2020. His annual base salary for 2020 was \$400,000.
- (5) The amounts reported represent bonuses based upon the board of directors' assessment of the achievement of corporate objectives and, for named executive officers other than Dr. Cagnoni, individual performance objectives for the year ended December 31, 2019, which were paid in February 2020 and for the year ended December 31, 2020, which were paid in February 2021. For Dr. Turka, the amount reported for the year ended December 31, 2020 reflects his annual performance bonus for that year prorated for the period January 21, 2020 through December 31, 2020 and also includes a \$125,000 cash signing bonus. Amounts reported for Ms. Appelhans in 2021 and Ms. Keson-Brookes in 2019 consist entirely of cash signing bonuses in the amounts of \$130,000 and \$140,000, respectively.
- (6) The amounts reported represent the aggregate grant date fair value of all RSU awards granted in 2021, calculated in accordance with FASB ASC Topic 718. This calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The grant date fair value of each RSU award is measured based on the closing price of our common stock on the date of grant. Note that the amounts reported in this column reflect the accounting cost for these RSUs and do not necessarily correspond to the actual economic value recognized or that may be received by the NEOs upon vesting of the RSUs.

- (7) The amounts reported represent the aggregate grant-date fair value of stock options granted in 2019, 2020 and 2021, calculated in accordance with FASB ASC Topic 718. This calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions used in calculating the grant-date fair value are set forth in Note 8 to our audited consolidated financial statements in our 2021 Annual Report. Note that the amounts reported in this column reflect the accounting cost for these stock options and do not necessarily correspond to the actual economic value that may be received by the NEO upon exercise of the options.
- (8) The amounts reported represent bonuses based upon the board of directors' assessment of the achievement of corporate objectives and, for named executive officers other than Dr. Cagnoni, individual performance objectives for the year ended December 31, 2021, which were paid in February 2022. The bonus amount reported for Ms. Appelhans for 2021 reflects her annual performance bonus for that year prorated for the period of her employment in 2021 from August 9, 2021 through December 2021. For further discussion of performance bonus amounts earned by our NEOs in 2021, see the section captioned "2021 Performance Bonus Plan" above.
- (9) The amount reported for 2021 represents long-term disability insurance premiums and group term life insurance premiums in excess of statutory limits and the company's match on contributions made to our 401(k) plan. For Ms. Appelhans, the amount reported also includes a travel allowance totaling \$35,000.

Grants of Plan-Based Awards Table

The following table sets forth the individual awards made to each of our NEOs during the fiscal year ended December 31, 2021. For a description of the type of awards indicated below, please see our "Compensation Discussion and Analysis" above.

<u>Name</u>	<u>Grant Date</u> (1)	<u>Estimated Possible Payouts Under Non-Equity Incentive Plan Awards – Target (\$)</u> (2)	<u>All Other Stock Awards; Number of Shares of Stock or Units (#)</u> (3)	<u>All Other Option Awards; Number of Securities Underlying Options (#)</u> (4)	<u>Exercise or Base Price of Option Awards (\$/Sh)</u> (5)	<u>Grant Date Fair Value of Stock and Option Awards (\$)</u> (6)
Pablo J. Cagnoni, M.D.	—	330,000	—	—	—	—
	1/29/2021	—	—	375,000	11.97	2,996,738
	1/29/2021	—	85,000	—	—	1,017,450
Jose Carmona	—	180,000	—	—	—	—
Dannielle Appelhans	—	71,507	—	—	—	—
	8/31/2021	—	—	150,000	21.72	2,185,155
	8/31/2021	—	50,000	—	—	1,086,000
Maiken Keson- Brookes	—	166,400	—	—	—	—
	1/29/2021	—	—	142,500	11.97	1,138,760
	1/29/2021	—	32,300	—	—	386,631
Laurence Turka, M.D.	—	170,010	—	—	—	—
	1/29/2021	—	—	131,250	11.97	1,048,858
	1/29/2021	—	29,750	—	—	356,108

(1) All equity grants were approved by the compensation committee or board of directors on January 28, 2021, with a grant date of January 29, 2021, other than the new hire awards for Ms. Appelhans, which were approved by the compensation committee on August 10, 2021, with a grant date of August 31, 2021, consistent with the Company's equity award grant policy.

- (2) Amounts reported reflect the target bonus amount for each NEO for the year ended December 31, 2021 under the performance bonus plan. There are no thresholds or maximum bonus amounts established under the performance bonus plan. Target bonuses were set as a percentage of each NEO's base salary for the fiscal year ended December 31, 2021. For further discussion of performance bonus amounts earned by our NEOs in 2021, see "2021 Performance Bonus Plan 2021 Performance Bonus Payout" above. The target bonus for Ms. Appelhans is prorated for the period of her employment in 2021 from August 9, 2021 through December 31, 2021.
- (3) Represents RSU awards granted under the Rubius Therapeutics, Inc. 2018 Stock Option and Incentive Plan, or the 2018 Plan. Each RSU is subject to time-based vesting, as described in the footnotes to the "Outstanding Equity Awards at 2021 Fiscal Year End Table" below.
- (4) Represents stock option awards granted under the 2018 Plan. Each stock option is subject to time-based vesting, as described in the footnotes to the "Outstanding Equity Awards at 2021 Fiscal Year End Table" below.
- (5) Based upon the closing sale price of our common stock as reported on the Nasdaq Global Select Market on the date of grant.
- (6) The amounts reported represent the grant date fair value of the stock options and RSUs, as applicable, awarded to the NEOs during 2021, calculated in accordance with FASB ASC Topic 718. This calculation does not give effect to any estimate of forfeitures related to service-based vesting, but assumes that the executive will perform the requisite service for the award to vest in full. The assumptions used in calculating the grant date fair value of the stock options and RSUs, as applicable, reported in this column are set forth in Note 8 to our Consolidated Financial Statements for the year ended December 31, 2021 included in our 2021 Annual Report. The amounts reported in this column reflect the accounting cost for these stock options and RSUs, and do not necessarily correspond to the actual economic value that may be received by the NEOs upon the exercise of the stock options, the vesting of the RSUs or any sale of the underlying shares of common stock.

Outstanding Equity Awards at 2021 Fiscal Year End Table

The following table presents information regarding all outstanding equity awards held by each of our NEOs on December 31, 2021.

Name	Option Awards					Stock Awards	
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price (\$)	Option Expiration Date	Number of shares or units of stock that have not vested(#)	Market value of shares or units of stock that have not vested(\$) ⁽¹⁾
Pablo J. Cagnoni, M.D. . . .	3,486,858	316,988 ⁽²⁾	—	8.66	4/10/2028	85,000 ⁽³⁾	822,800
	—	—	164,400 ⁽⁴⁾	16.43	10/30/2028	—	—
	—	—	193,400 ⁽⁵⁾	16.43	10/30/2028	—	—
	68,750	31,250 ⁽⁶⁾	—	13.69	1/30/2029	—	—
	218,750	281,250 ⁽⁷⁾	—	7.80	1/30/2030	—	—
	—	375,000 ⁽⁸⁾	—	11.97	1/28/2031	—	—
Jose Carmona	100,000	300,000 ⁽⁹⁾	—	6.27	11/29/2030	—	—
Dannielle Appelhans	—	150,000 ⁽¹⁰⁾	—	21.72	8/30/2031	50,000 ⁽¹¹⁾	484,000
Maiken Keson-Brookes . . .	100,000	125,000 ⁽¹²⁾	—	7.70	11/28/2029	32,300 ⁽³⁾	312,664
	—	142,500 ⁽⁸⁾	—	11.97	1/28/2031	—	—
Laurence Turka, M.D. . . .	153,125	196,875 ⁽⁷⁾	—	7.80	1/30/2030	29,750 ⁽³⁾	287,980
	—	131,250 ⁽⁸⁾	—	11.97	1/28/2031	—	—

- (1) Represents the fair market value of unvested RSUs as of December 31, 2021 based upon the closing market price of our common stock on December 31, 2021, the last trading day of 2021, of \$9.68 per share.

- (2) 25% of the shares subject to the stock option vested on April 11, 2019, with the remainder vesting in 36 equal monthly installments thereafter.
- (3) The shares underlying the RSUs vest in four equal annual installments beginning on January 29, 2022.
- (4) Vesting of the stock option is subject to the achievement of a market-based performance milestone. Once achieved, 25% of the shares subject to the stock option will be deemed vested effective as of October 31, 2019, with the remainder deemed vested in 12 equal quarterly installments thereafter.
- (5) Vesting of the stock option is subject to the achievement of a market-based performance milestone. Once the initial milestone is achieved, 50% of the shares subject to the stock option vest upon the achievement of a clinical performance milestone and 50% of the shares subject to the stock option vest upon the achievement of a second clinical performance milestone.
- (6) 25% of the shares subject to the stock option vested on January 31, 2020, with the remainder vesting in 12 equal quarterly installments thereafter.
- (7) 25% of the shares subject to the stock option vested on January 31, 2021, with the remainder vesting in 12 equal quarterly installments thereafter.
- (8) 25% of the shares subject to the stock option vested on January 29, 2022, with the remainder vesting in 12 equal quarterly installments thereafter.
- (9) 25% of the shares subject to the stock option vested on October 1, 2021, with the remainder vesting in 12 equal quarterly installments thereafter.
- (10) 25% of the shares subject to the stock option vest on August 9, 2022, with the remainder vesting in 12 equal quarterly installments thereafter.
- (11) The shares underlying the RSUs vest in four equal annual installments beginning on August 9, 2022.
- (12) 25% of the shares subject to the stock option vested on November 18, 2020, with the remainder vesting in 12 equal quarterly installments thereafter.

Option Exercises and Stock Vested Table

The following table provides information on stock options exercised, including the number of shares acquired upon exercise and the value realized, determined as described below, for the NEOs in the year ended December 31, 2021. No stock awards vested during this period.

Name	Option Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$) ⁽¹⁾
Pablo J. Cagnoni, M.D.	—	—
Jose Carmona	—	—
Dannielle Appelhans	—	—
Maiken-Keson Brookes	25,000	564,750
Laurence Turka, M.D.	—	—

(1) The value realized on exercise is equal to the difference between the closing price of our common stock on the date of exercise and the applicable exercise price, and does not represent actual amounts received by the NEOs as a result of the option exercises.

Potential Payments upon Termination or Change of Control

Employment Arrangements with our Named Executive Officers

Pablo J. Cagnoni, M.D.

Under the employment agreement with Dr. Cagnoni, or the Cagnoni Employment Agreement, he serves as our Chief Executive Officer on an at-will basis. Dr. Cagnoni currently receives a base salary of \$618,000 per year effective March 1, 2022, which is subject to periodic review and adjustment. Dr. Cagnoni is also eligible for an annual performance bonus, which for 2021 was targeted at 55% of his base salary, and is eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Cagnoni Employment Agreement further provides that if Dr. Cagnoni's employment is terminated by us without Cause (as defined in the Cagnoni Employment Agreement) or Dr. Cagnoni resigns for Good Reason (as defined in the Cagnoni Employment Agreement), he will be entitled to receive: (i) base salary continuation for 12 months following termination, or the Cagnoni Severance Payments, (ii) accelerated vesting of the unvested portion of all stock options and other stock-based awards held by him that are subject to time-based vesting, or the Time-Based Equity Awards, that would have vested and, if applicable, become exercisable, had Dr. Cagnoni remained employed with the company through the one-year anniversary of the date of termination, (iii) extended time to exercise any vested and exercisable stock options held by Dr. Cagnoni as of the date of termination until the earlier of one year following the date of termination or the original expiration date of the option, and, (iv) if Dr. Cagnoni is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 12 months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law). Payment of the Cagnoni Severance Payments shall immediately cease if Dr. Cagnoni breaches the terms of the Restrictive Covenants Agreement between him and us.

In lieu of the severance payments and benefits set forth above, in the event Dr. Cagnoni's employment is terminated by us without Cause or he resigns for Good Reason, in either case within 12 months following a Change in Control (as defined in the Cagnoni Employment Agreement), he will be entitled to receive: (i) a lump sum cash amount equal to 1.5 times the sum of (A) his current base salary (or his base salary in effect prior to the Change in Control, if higher) plus (B) his target annual cash incentive compensation for the year of termination, (ii) a lump sum cash amount equal to a pro-rata portion of Dr. Cagnoni's annual target incentive compensation for the year of termination, (iii) if Dr. Cagnoni is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 18 months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law), and (iv) except as otherwise provided in the applicable award agreement, accelerated vesting of 100% of all Time-Based Equity Awards held by Dr. Cagnoni and vesting of a pro-rata portion of performance-based equity awards held by Dr. Cagnoni at the end of the performance period based on actual performance.

The payments and benefits provided under the Cagnoni Employment Agreement in connection with a change in control may not be eligible for a federal income tax deduction for the company pursuant to Section 280G of the Code. These payments and benefits also may be subject to an excise tax under Section 4999 of the Code. If the payments or benefits payable to the Dr. Cagnoni in connection with a change in control would be subject to the excise tax on golden parachutes imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to Dr. Cagnoni.

Jose Carmona

Under the employment agreement with Mr. Carmona, or the Carmona Employment Agreement, he serves as our Chief Financial Officer on an at-will basis. Mr. Carmona currently receive a base salary of \$465,300 per year, effective March 1, 2022, which is subject to periodic review and adjustment. Mr. Carmona is also eligible for an annual performance bonus, which for 2021 was targeted at 40% of his base salary, and is eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Carmona Employment Agreement further provides that if Mr. Carmona's employment is terminated by us without Cause (as defined in the Carmona Employment Agreement) or Mr. Carmona resigns for Good Reason (as defined in the Carmona Employment Agreement), he will be entitled to receive: (i) base salary continuation for nine months following termination, or the Carmona Severance Payments, and, (ii) if Mr. Carmona is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, nine months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determines we cannot pay such amounts without potentially violating applicable law). Payment of the Carmona Severance Payments received in any calendar year will be reduced by the amount he is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Mr. Carmona and the company, if any, and shall be suspended or terminated at our discretion if Mr. Carmona breaches the terms of the Restrictive Covenants Agreement between him and us.

In lieu of the severance payments and benefits set forth above, in the event Mr. Carmona's employment is terminated by us without Cause or he resigns for Good Reason, in either case within 12 months following a Change in Control (as defined in the Carmona Employment Agreement), he will be entitled to receive: (i) a lump sum cash amount equal to one times the sum of (A) his current base salary (or his base salary in effect prior to the Change in Control, if higher) plus (B) his target annual cash incentive compensation for the year of termination, or the Carmona Change in Control Payment, (ii) if Mr. Carmona is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 12 months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law), and (iii) except as otherwise provided in the applicable award agreement, accelerated vesting of 100% of all Time-Based Equity Awards (as defined in the Carmona Employment Agreement) held by Mr. Carmona. Payment of the Carmona Change in Control Payment received in any calendar year will be reduced by the amount he is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Mr. Carmona and the company, if any.

The payments and benefits provided under the Carmona Employment Agreement in connection with a change in control may not be eligible for a federal income tax deduction for the company pursuant to Section 280G of the Code. These payments and benefits also may be subject to an excise tax under Section 4999 of the Code. If the payments or benefits payable to the Mr. Carmona in connection with a change in control would be subject to the excise tax on golden parachutes imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to Mr. Carmona.

Dannielle Appelhans

Under the employment agreement with Ms. Appelhans, or the Appelhans Employment Agreement, she serves as our Chief Operating Officer on an at-will basis. Ms. Appelhans currently receives a base salary of \$465,195 per year, effective March 1, 2022, which is subject to periodic review and adjustment. Ms. Appelhans is also eligible for an annual performance bonus, which for 2021 was targeted at 40% of her base salary, and is eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Appelhans Employment Agreement further provides that if Ms. Appelhans's employment is terminated by us without Cause (as defined in the Appelhans Employment Agreement) or Ms. Appelhans resigns for Good Reason (as defined in the Appelhans Employment Agreement), she will be entitled to receive: (i) base salary continuation for nine months following termination, or the Appelhans Severance Payments, and, (ii) if Ms. Appelhans is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, nine months of COBRA premiums for herself and her eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law). Payment of the Appelhans Severance Payments received in any calendar year will be reduced by the amount she is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Ms. Appelhans and the company, if any, and shall be suspended or terminated at our discretion if Ms. Appelhans breaches the terms of the Restrictive Covenants Agreement between her and us.

In lieu of the severance payments and benefits set forth above, in the event Ms. Appelhans' employment is terminated by us without Cause or she resigns for Good Reason, in either case within 12 months following a Change in Control (as defined in the Appelhans Employment Agreement), she will be entitled to receive: (i) a lump sum cash amount equal to one times the sum of (A) her current base salary (or her base salary in effect prior to the Change in Control, if higher) plus (B) her target annual cash incentive compensation for the year of termination, or the Appelhans Change in Control Payment, (ii) if Ms. Appelhans is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 12 months of COBRA premiums for herself and her eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law), and (iii) except as otherwise provided in the applicable award agreement, accelerated vesting of all Time-Based Equity Awards (as defined in the Appelhans Employment Agreement) held by Ms. Appelhans. Payment of the Appelhans Change in Control Payment received in any calendar year will be reduced by the amount she is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Ms. Appelhans and the company, if any.

The payments and benefits provided under the Appelhans Employment Agreement in connection with a change in control may not be eligible for a federal income tax deduction for the company pursuant to Section 280G of the Code. These payments and benefits also may be subject to an excise tax under Section 4999 of the Code. If the payments or benefits payable to Ms. Appelhans in connection with a change in control would be subject to the excise tax on golden parachutes imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to Ms. Appelhans.

Maiken Keson-Brookes

Under the employment agreement with Ms. Keson-Brookes, or the Keson-Brookes Employment Agreement, she serves as our Chief Legal Officer on an at-will basis. Ms. Keson-Brookes currently receives a base salary of \$430,976 per year effective March 1, 2022, which is subject to periodic review and adjustment. Ms. Keson-Brookes is also eligible for an annual performance bonus, which for 2021 was targeted at 40% of her base salary, and is eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Keson-Brookes Employment Agreement further provides that if Ms. Keson-Brookes' employment is terminated by us without Cause (as defined in the Keson-Brookes Employment Agreement) or she resigns for Good Reason (as defined in the Keson-Brookes Employment Agreement), she will be entitled to receive: (i) base salary continuation for nine months following termination, or the Keson-Brookes Severance Payments, and, (ii) if Ms. Keson-Brookes is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, nine months of COBRA premiums for herself and her eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law). Payment of the Keson-Brookes Severance Amount received in any calendar year will be reduced by the amount she is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Ms. Keson-Brookes

and the company, if any, and shall be suspended or terminated at our discretion if Ms. Keson-Brookes breaches the terms of the Restrictive Covenants Agreement between her and us.

In lieu of the severance payments and benefits set forth above, in the event Ms. Keson-Brookes' employment is terminated by us without Cause or she resigns for Good Reason, in either case within 12 months following a Change in Control (as defined in the Keson-Brookes Employment Agreement), she will be entitled to receive: (i) a lump sum cash amount equal to one times the sum of (A) her current base salary (or her base salary in effect prior to the Change in Control, if higher) plus (B) her target annual cash incentive compensation for the year of termination, or the Keson-Brookes Change in Control Payment, (ii) if Ms. Keson-Brookes is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 12 months of COBRA premiums for herself and her eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law), and (iii) except as otherwise provided in the applicable award agreement, accelerated vesting of 100% of all Time-Based Equity Awards (as defined in the Keson-Brookes Employment Agreement) held by Ms. Keson-Brookes. Payment of the Keson-Brookes Change in Control Payment received in any calendar year will be reduced by the amount she is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Ms. Keson-Brookes and the company, if any.

The payments and benefits provided under the Keson-Brookes Employment Agreement in connection with a change in control may not be eligible for a federal income tax deduction for the company pursuant to Section 280G of the Code. These payments and benefits also may be subject to an excise tax under Section 4999 of the Code. If the payments or benefits payable to Ms. Keson-Brookes in connection with a change in control would be subject to the excise tax on golden parachutes imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to Ms. Keson-Brookes.

Laurence Turka, M.D.

Under the employment agreement with Dr. Turka, or the Turka Employment Agreement, he serves as our Chief Scientific Officer on an at-will basis. Dr. Turka currently receives a base salary of \$464,987 per year effective March 1, 2022, which is subject to periodic review and adjustment. Dr. Turka is also eligible for an annual performance bonus, which for 2021 was targeted at 40% of his base salary, and is eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Turka Employment Agreement further provides that if Dr. Turka's employment is terminated by us without Cause (as defined in the Turka Employment Agreement) or he resigns for Good Reason (as defined in the Turka Employment Agreement), he will be entitled to receive: (i) base salary continuation for nine months following termination, or the Turka Severance Payments, and, (ii) if Dr. Turka is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, nine months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law). Payment of the Turka Severance Amount received in any calendar year will be reduced by the amount he is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Dr. Turka and the company, if any, and shall be suspended or terminated at our discretion if Dr. Turka breaches the terms of the Restrictive Covenants Agreement between him and us.

In lieu of the severance payments and benefits set forth above, in the event Dr. Turka's employment is terminated by us without Cause or he resigns for Good Reason, in either case within 12 months following a Change in Control (as defined in the Turka Employment Agreement), he will be entitled to receive: (i) a lump sum cash amount equal to one times the sum of (A) his current base salary (or his base salary in effect prior to the Change in Control, if higher) plus (B) his target annual cash incentive compensation for the year of termination, or the Turka Change in Control Payment, (ii) if Dr. Turka is enrolled in our health care program immediately prior to the date of termination and properly elects to receive COBRA benefits, 12 months of COBRA premiums for himself and his eligible dependents at our normal rate of contribution

for employees for coverage at the level in effect immediately prior to the date of termination (or a monthly cash payment in lieu thereof if we determine we cannot pay such amounts without potentially violating applicable law), and (iii) except as otherwise provided in the applicable award agreement, accelerated vesting of 100% of all Time-Based Equity Awards (as defined in the Turka Employment Agreement) held by Dr. Turka. Payment of the Turka Change in Control Payment received in any calendar year will be reduced by the amount he is paid in the same such calendar year pursuant to the Restrictive Covenants Agreement between Dr. Turka and the company, if any.

The payments and benefits provided under the Turka Employment Agreement in connection with a change in control may not be eligible for a federal income tax deduction for the company pursuant to Section 280G of the Code. These payments and benefits also may be subject to an excise tax under Section 4999 of the Code. If the payments or benefits payable to the Dr. Turka in connection with a change in control would be subject to the excise tax on golden parachutes imposed under Section 4999 of the Code, then those payments or benefits will be reduced if such reduction would result in a higher net after-tax benefit to Dr. Turka.

Potential Payments Upon Termination or Change in Control Table

The following table estimates, for each NEO, the potential severance payments and benefits to which such NEO would have been entitled under their respective employment agreement in connection with specified termination events, calculated as if such NEO's employment had terminated as of December 31, 2021. In addition, the table sets forth the respective amounts to which each NEO would have been entitled under their respective employment agreement upon a change in control transaction as a result of the accelerated vesting and exercisability of stock options and the vesting of RSU awards had such event occurred on December 31, 2021.

The closing market price of a share of our common stock on December 31, 2021 was \$9.68.

There are no other agreements, arrangements or plans that entitle any NEOs to severance, perquisites or other benefits upon termination of employment or a change in control. For purposes of the table below, we have assumed that none of the potential severance benefits payable under an NEO's respective employment agreement would be subject to the excise tax imposed by section 4999 of the Code and therefore would not be reduced in accordance with the terms of the NEO's employment agreement.

POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE IN CONTROL

Name	Qualifying Termination Not in Connection with a Change in Control (\$) ⁽¹⁾	Qualifying Termination in Connection with a Change in Control (\$) ⁽¹⁾⁽²⁾
Pablo J. Cagnoni, M.D.		
Cash Severance Payment	600,000 ⁽³⁾	1,395,000 ⁽⁴⁾
Target Cash Bonus Payment	—	330,000 ⁽⁵⁾
COBRA Premiums	21,478 ⁽⁶⁾	32,217 ⁽⁷⁾
Accelerated Equity Vesting (Time-Based)	764,028 ⁽⁸⁾	1,674,878 ⁽⁹⁾
Accelerated Equity Vesting (Performance-Based)	—	— ⁽¹⁰⁾
Total	1,385,506	3,432,095
Jose Carmona		
Cash Severance Payment	337,500 ⁽¹¹⁾	630,000 ⁽¹²⁾
COBRA Premiums	16,109 ⁽¹³⁾	21,478 ⁽⁶⁾
Accelerated Equity Vesting (Time-Based)	—	1,023,000 ⁽⁹⁾
Total	353,609	1,674,478
Dannielle Appelhans		
Cash Severance Payment	337,500 ⁽¹¹⁾	521,507 ⁽¹²⁾
COBRA Premiums	16,109 ⁽¹³⁾	21,478 ⁽⁶⁾
Accelerated Equity Vesting (Time-Based)	—	484,000 ⁽⁹⁾
Total	353,609	1,026,985
Maiken Keson-Brookes		
Cash Severance Payment	312,000 ⁽¹¹⁾	582,400 ⁽¹²⁾
COBRA Premiums	— ⁽¹⁴⁾	— ⁽¹⁴⁾
Accelerated Equity Vesting (Time-Based)	—	560,164 ⁽⁹⁾
Total	312,000	1,142,564
Laurence Turka, M.D.		
Cash Severance Payment	348,740 ⁽¹¹⁾	634,997 ⁽¹²⁾
COBRA Premiums	16,109 ⁽¹³⁾	21,478 ⁽⁶⁾
Accelerated Equity Vesting (Time-Based)	—	658,105 ⁽⁹⁾
Total	364,849	1,314,580

- (1) A “qualifying termination” means a termination without “Cause” or a resignation for “Good Reason” (in each case, as defined in the NEO’s employment agreement). “Change in Control” has the meaning set forth in the NEO’s employment agreement.
- (2) “In connection with a change in control” means within the change in control period (i.e., the period beginning on the date of a Change in Control and ending on the one-year anniversary of the Change in Control).
- (3) Represents 12 months of the NEO’s base salary.
- (4) Represents a lump sum cash amount equal to 1.5 times the sum of the NEO’s base salary plus such NEO’s target annual cash incentive compensation for the year of termination.
- (5) Represents a lump sum cash amount equal to a pro-rata portion of the NEO’s target bonus opportunity for the year of termination.
- (6) Represents 12 months of our contribution towards health insurance, based on our actual costs to provide health insurance to the NEO as of the date of termination.

- (7) Represents 18 months of our contribution towards health insurance, based on our actual costs to provide health insurance to the NEO as of the date of termination.
- (8) Represents the value of acceleration of the NEO's unvested and outstanding time-based equity awards that would have vested had the NEO remain employed with the company through the one-year anniversary of the date of termination, based on the market price of a share of our common stock on December 31, 2021, which was \$9.68.
- (9) Represents the value of acceleration of vesting of 100% of the NEO's unvested and outstanding time-based equity awards, based on the market price of a share of our common stock on December 31, 2021, which was \$9.68.
- (10) Pursuant to his employment agreement, Dr. Cagnoni is entitled to vesting of a pro-rata portion of performance-based equity awards held by him at the end of the performance period based on actual performance. The performance metrics for such awards have not yet been achieved and the exercise price of such awards is in excess of the closing market price of a share of our common stock on December 31, 2021. Accordingly, no value has been included for such awards.
- (11) Represents nine months of the NEO's base salary.
- (12) Represents a lump sum cash amount equal to one times the sum of the NEO's base salary plus such NEO's target annual cash incentive compensation for the year of termination.
- (13) Represents nine months of our contribution towards health insurance, based on our actual costs to provide health insurance to the NEO as of the date of termination.
- (14) As of December 31, 2021, Ms. Keson-Brookes has elected not to participate in the company's health insurance programs.

Securities Authorized for Issuance under Equity Compensation Plans

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 the Rubius Therapeutics, Inc. Amended and Restated 2014 Stock Incentive Plan, or the 2014 Plan, the 2018 Plan and the Rubius Therapeutics, Inc. 2018 Employee Stock Purchase Plan, or the 2018 Employee Stock Purchase Plan.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (#)	Weighted-average exercise price of outstanding options, warrants and rights (\$)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first column)
Equity compensation plans approved by security holders ⁽¹⁾	18,290,816 ⁽²⁾	\$12.13 ⁽³⁾	5,007,745 ⁽⁴⁾
Equity compensation plans not approved by security holders	—	—	—
Total	18,290,816	\$ 12.13	5,007,745

(1) The 2018 Plan provides that an additional number of shares will automatically be added to the shares authorized for issuance under the 2018 Plan on January 1 of each year. The number of shares added each year will be equal to the lesser of: (i) 4% of the outstanding shares on the immediately preceding December 31; or (ii) such amount as determined by the compensation committee of our board of directors. Additionally, the 2018 Employee Stock Purchase Plan provides that an additional number of shares will automatically be added to the shares authorized for issuance under the 2018 Employee Stock Purchase Plan on January 1 of each year, starting on January 1, 2019 through January 1, 2028. The number of shares added each year will be equal to the least of: (i) 1% of the outstanding shares on the immediately preceding December 31; (ii) 951,488 shares of common stock; or (iii) such amount as determined by the compensation committee of our board of directors.

- (2) Represents 17,496,572 shares of common stock issuable upon the exercise of outstanding stock options and 794,244 outstanding restricted stock units that will entitle the holder to one share of common stock for each unit that vests over the holder's vesting period. Amount does not include purchase rights accruing under the 2018 Employee Stock Purchase Plan because the purchase right (and therefore the number of shares to be purchased) will not be determined until the end of the purchase period.
- (3) The weighted-average exercise price is calculated based solely on outstanding stock options and does not include outstanding restricted stock units, which do not have an exercise price.
- (4) As of December 31, 2021, there were 3,290,353 shares available for grant under the 2018 Plan and 1,717,392 shares available for grants under the 2018 Employee Stock Purchase Plan. As of the closing of our initial public offering, no additional equity awards may be granted under the 2014 Plan.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During 2021, Noubar B. Afeyan, Francis Cuss and Catherine A. Sohn served on our compensation committee. Neither Dr. Cuss nor Dr. Sohn has at any time been one of our officers or employees or had any relationship requiring disclosure herein. Dr. Afeyan previously served as our President from April 2013 to May 2014 and is affiliated with our principal stockholder, the Flagship Pioneering Funds, as described in this proxy statement.

COMPENSATION COMMITTEE REPORT

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 compensation and talent committee reviewed and discussed the disclosure included in the “Compensation Discussion and Analysis” section of this proxy statement with management. Based on such review and discussions, the compensation and talent committee recommended to the board of directors that the disclosure included in the “Compensation Discussion and Analysis” section be included in this proxy statement.

THE COMPENSATION AND TALENT
COMMITTEE OF THE BOARD OF DIRECTORS
OF RUBIUS THERAPEUTICS, INC.
Catherine A. Sohn, Pharm.D., *Chairperson*
Noubar B. Afeyan, Ph.D.
Francis Cuss, M.B., B.Chir., FRCP

March 30, 2022

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 and in which any director, executive officer, holder of 5% 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.

Limitation of Liability and Indemnification of Officers and Directors

Our certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for the following:

- any breach of their duty of loyalty to our company or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which they derived an improper personal benefit.

Any amendment to, or repeal of, these provisions will not eliminate or reduce the effect of these provisions in respect of any act, omission or claim that occurred or arose prior to that amendment or repeal. If the Delaware General Corporation Law is amended to provide for further limitations on the personal liability of directors of corporations, then the personal liability of our directors will be further limited to the greatest extent permitted by the Delaware General Corporation Law.

In addition, we adopted bylaws which provide that we will indemnify, to the fullest extent permitted by law, any person who is or was a party or is threatened to be made a party to any action, suit or proceeding by reason of the fact that he or she is or was one of our directors or officers or is or was serving at our request as a director or officer of another corporation, partnership, joint venture, trust, or other enterprise. Our bylaws provide that we may indemnify to the fullest extent permitted by law any person who is or was a party or is threatened to be made a party to any action, suit, or proceeding by reason of the fact that he or she is or was one of our employees or agents or is or was serving at our request as an employee or agent of another corporation, partnership, joint venture, trust or other enterprise. Our bylaws also provide that we must advance expenses incurred by or on behalf of a director or officer in advance of the final disposition of any action or proceeding, subject to very limited exceptions.

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 to the maximum extent allowed under Delaware law.

Related Person Transaction Policy

Our board of directors adopted a written related person transactions policy providing that transactions with “related persons” must be presented to our audit committee for review, consideration and approval. This policy became effective on July 17, 2018, the date our registration statement for our initial public offering became effective. Pursuant to this policy, the audit committee has the primary responsibility for reviewing and approving or disapproving “related person transactions,” which are transactions or series of transactions between us and related persons in which the aggregate amount involved exceeds or may be expected to exceed \$120,000 and in which a related person has or will have a direct or indirect material interest. For purposes of this policy, a related person is defined as a director, executive officer, nominee for director, or greater than 5% beneficial owner of our common stock and their immediate family members. In approving or rejecting any such proposal, our audit committee is to consider the relevant facts and circumstances available and deemed relevant to the audit committee, including, but not limited to, the extent of the related party’s interest in the transaction, and whether the transaction is on terms no less favorable to us than terms we could have generally obtained from an unaffiliated third party under the same or similar circumstances.

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 March 15, 2022 by:

- each of our directors;
- each of our NEOs;
- all of our directors and executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to be the beneficial owners of greater-than-5.0% of our common stock.

The column entitled “Shares Beneficially Owned” is based on a total of 90,186,626 shares of our common stock outstanding as of March 15, 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 March 15, 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 footnotes to the table below, addresses of named beneficial owners are in care of Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, Cambridge, Massachusetts 02139.

Name and address of beneficial owner	Shares beneficially owned	
	Number	Percentage
<i>5% Stockholders:</i>		
Entities affiliated with the Flagship Pioneering Funds ⁽¹⁾	38,506,526	42.7%
FMR LLC ⁽²⁾	13,479,866	14.9%
Baillie Gifford & Co ⁽³⁾	4,930,859	5.5%
<i>Named Executive Officers and Directors:</i>		
Pablo J. Cagnoni, M.D. ⁽⁴⁾	4,312,853	4.6%
Jose Carmona ⁽⁵⁾	150,000	*
Dannielle Appelhans ⁽⁶⁾	—	*
Maiken Keson-Brookes ⁽⁷⁾	165,499	*
Laurence Turka, M.D. ⁽⁸⁾	242,811	*
Noubar B. Afeyan, Ph.D. ⁽⁹⁾	38,606,526	42.8%
Francis Cuss, M.B., B.Chir., FRCP ⁽¹⁰⁾	240,000	*
David R. Epstein ⁽¹¹⁾	7,171,065	7.8%
Natalie Holles ⁽⁵⁾	100,000	*
Anne Prener, M.D., Ph.D. ⁽⁵⁾	62,500	*
Michael Rosenblatt, M.D. ⁽⁵⁾	250,000	*
Catherine A. Sohn, Pharm.D. ⁽¹²⁾	232,500	*
Sir Jonathan R. Symonds, CBE ⁽¹³⁾	295,000	*
All executive officers and directors as a group (13 persons) ⁽¹⁴⁾	51,828,754	52.6%

* Less than 1% of the outstanding shares of our common stock.

- (1) Includes (a) 5,000,000 shares of common stock held by Flagship VentureLabs IV LLC (“VentureLabs IV”), (b) 15,393,593 shares of common stock held by Flagship Ventures Fund IV, L.P. (“Flagship Fund IV”), (c) 3,830,402 shares of common stock held by Flagship Ventures Fund IV-Rx, L.P. (“Flagship Fund IV-Rx”), (d) 5,859,414 shares of common stock held by Flagship Ventures Fund V, L.P. (“Flagship Fund V”), (e) 5,789,414 shares of common stock held by Flagship V VentureLabs Rx Fund, L.P. (“Flagship Fund V-Rx”), and (f) 2,633,703 shares of common stock held by Flagship Ventures Opportunities Fund I, L.P. (“Flagship Opportunities,” and together with VentureLabs IV, Flagship Fund IV, Flagship Fund IV-Rx, Flagship Fund V, and Flagship Fund V-Rx the “Flagship Funds”). Flagship Fund IV is a member of VentureLabs IV and also serves as its manager. Flagship Ventures Fund IV General Partner LLC (“Flagship Fund IV GP”) is the general partner of Flagship Fund IV and Flagship Fund IV-Rx. The general partner of Flagship Fund V and Flagship Fund V-Rx is Flagship Ventures Fund V General Partner LLC (“Flagship Fund V GP”), and the general partner of Flagship Opportunities is Flagship Ventures Opportunities Fund I General Partner LLC (“Flagship Opportunities GP” and together with Flagship Fund IV GP, and Flagship Fund V GP, the “Flagship General Partners”). Noubar B. Afeyan, Ph.D. is one of our directors and is also the sole manager of Flagship Fund IV GP, Flagship Fund V GP and Flagship Opportunities GP. Dr. Afeyan may be deemed to possess sole voting and investment control over the shares held by the Flagship Funds. None of the Flagship General Partners and Dr. Afeyan directly own any of the shares held by the Flagship Funds, and each of the Flagship General Partners and Dr. Afeyan disclaims beneficial ownership of such shares except to the extent of its or his pecuniary interest therein. The address of the entities and individual listed above is 55 Cambridge Parkway, Suite 800E, Cambridge, MA 02142.
- (2) Information herein is based on the Amendment No. 4 to Schedule 13G filed by FMR LLC with the SEC on February 9, 2022. Fidelity Management & Research Company (“FMR Co”), Fidelity Personal Trust Company, FMR Co., Inc, and Strategic Advisors LLC beneficially own shares reported this filing. Abigail P. Johnson is a Director, the Chairman and the Chief Executive Officer of FMR LLC. Members of the Johnson family, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders’ voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders’ voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act (“Fidelity Funds”) advised by Fidelity Management & Research Company LLC (“FMR Co. LLC”), a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds’ Boards of Trustees. FMR Co. LLC carries out the voting of the shares under written guidelines established by the Fidelity Funds’ Boards of Trustees. This filing reflects the securities beneficially owned, or that may be deemed to be beneficially owned, by FMR LLC, certain of its subsidiaries and affiliates, and other companies (collectively, the “FMR Reporters”). This filing does not reflect securities, if any, beneficially owned by certain other companies whose beneficial ownership of securities is disaggregated from that of the FMR Reporters in accordance with Securities and Exchange Commission Release No. 34-39538 (January 12, 1998). The address of the entities and individuals listed above is 245 Summer Street, Boston, Massachusetts 02210.
- (3) Information herein is based on Amendment No. 3 to Schedule 13G filed by Baillie Gifford & Co. with the SEC on January 26, 2022. Securities reported on this Schedule 13G as being beneficially owned by Baillie Gifford & Co. are held by Baillie Gifford & Co. and/or one or more of its investment adviser subsidiaries, which may include Baillie Gifford Overseas Limited, on behalf of investment advisory clients, which may include investment companies registered under the Investment Company Act, employee benefit plans, pension funds or other institutional clients. The address of the entities and individuals listed above is Carlton Square, 1 Greenside Row, Edinburgh EH1 3AN, Scotland, UK.
- (4) Consists of (a) 29,320 shares of common stock held by Dr. Cagnoni and (b) 4,283,533 shares of common stock underlying options exercisable within 60 days of March 15, 2022.

- (5) Consists of shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (6) Ms. Appelhans held no options to purchase common stock exercisable within 60 days of March 15, 2022.
- (7) Consists of (a) 5,343 shares of common stock held by Ms. Keson-Brookes and (b) 160,156 shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (8) Consists of (a) 4,921 shares of common stock held by Dr. Turka and (b) 237,890 shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (9) Includes (a) 100,000 shares of common stock underlying options held directly by Dr. Afeyan exercisable within 60 days of March 15, 2022, (b) 5,000,000 shares of common stock held by Flagship VentureLabs IV LLC (“VentureLabs IV”), (c) 15,393,593 shares of common stock held by Flagship Ventures Fund IV, L.P. (“Flagship Fund IV”), (d) 3,830,402 shares of common stock held by Flagship Ventures Fund IV-Rx, L.P. (“Flagship Fund IV-Rx”), (e) 5,859,414 shares of common stock held by Flagship Ventures Fund V, L.P. (“Flagship Fund V”), (f) 5,789,414 shares of common stock held by Flagship V VentureLabs Rx Fund, L.P. (“Flagship Fund V-Rx”), and (g) 2,633,703 shares of common stock held by Flagship Ventures Opportunities Fund I, L.P. (“Flagship Opportunities,” and together with VentureLabs IV, Flagship Fund IV, Flagship Fund IV-Rx, Flagship Fund V, and Flagship Fund V-Rx the “Flagship Funds”). Flagship Fund IV is a member of VentureLabs IV and also serves as its manager. Flagship Ventures Fund IV General Partner LLC (“Flagship Fund IV GP”) is the general partner of Flagship Fund IV and Flagship Fund IV-Rx. The general partner of Flagship Fund V and Flagship Fund V-Rx is Flagship Ventures Fund V General Partner LLC (“Flagship Fund V GP”), and the general partner of Flagship Opportunities is Flagship Ventures Opportunities Fund I General Partner LLC (“Flagship Opportunities GP” and together with Flagship Fund IV GP, and Flagship Fund V GP, the “Flagship General Partners”). Noubar B. Afeyan, Ph.D. is one of our directors and is also the sole manager of Flagship Fund IV GP, Flagship Fund V GP and Flagship Opportunities GP. Dr. Afeyan may be deemed to possess sole voting and investment control over the shares held by the Flagship Funds. None of the Flagship General Partners and Dr. Afeyan directly own any of the shares held by the Flagship Funds, and each of the Flagship General Partners and Dr. Afeyan disclaims beneficial ownership of such shares except to the extent of its or his pecuniary interest therein. The address of the entities and individual listed above is 55 Cambridge Parkway, Suite 800E, Cambridge, MA 02142.
- (10) Consists of (a) 10,000 shares of common stock held by Dr. Cuss and (b) 230,000 shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (11) Consists of (a) 4,690,012 shares of common stock held directly by Mr. Epstein, (b) 2,301,053 shares of common stock underlying options held directly by Mr. Epstein exercisable within 60 days of March 15, 2022, and (c) 180,000 shares of common stock held by Three Opinions Foundation Inc. The address of the entities and individuals listed above is 17121 Collins Avenue, Apartment 2104, Sunny Isles Beach, FL 33160.
- (12) Consists of: (a) 2,500 shares of common stock held by Dr. Sohn and (b) 230,000 shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (13) Consists of: (a) 25,000 shares of common stock held by Sir Jonathan R. Symonds and (b) 270,000 shares of common stock underlying options exercisable within 60 days of March 15, 2022.
- (14) Consists of (a) 43,453,622 shares of common stock and (b) 8,375,132 shares of common stock underlying options exercisable within 60 days of March 15, 2022.

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 Rubius' 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 Rubius' independent registered public accounting firm, (3) the performance of Rubius' 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 Rubius' 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 Rubius' 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 Rubius 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 has received and reviewed the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding that firm's communications with the audit committee concerning independence 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 Rubius be included in Rubius' 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
RUBIUS THERAPEUTICS, INC.
Sir Jonathan R. Symonds, CBE, *Chairperson*
Natalie Holles
Catherine A. Sohn, Pharm.D.

March 30, 2022

HOUSEHOLDING OF PROXY MATERIALS

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 Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, Cambridge, Massachusetts 02139, Attention: Corporate Secretary, telephone: (617) 679-9600. 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 November 30, 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. 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 Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, 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 (i) by or at the direction of the board of directors or (ii) by a stockholder who was a stockholder of record at the time of giving notice, who is entitled to vote at the meeting, who is present (in person or by proxy) 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, a stockholder’s notice must be so received no 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 disclosure of the date of such annual meeting was 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 January 12, 2023 and no later than February 11, 2023. Stockholder proposals and the required notice should be addressed to Rubius Therapeutics, Inc., 399 Binney Street, Suite 300, 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 in connection with our 2023 annual meeting must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than March 13, 2023.

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.