

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

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of
the Securities Exchange Act of 1934 (Amendment No.)

Filed by the Registrant ☒

Filed by a Party other than the Registrant ☐

Check the appropriate box:

- ☐ Preliminary Proxy Statement
- ☐ **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- ☒ Definitive Proxy Statement
- ☐ Definitive Additional Materials
- ☐ Soliciting Material under §240.14a-12

AXCELLA HEALTH INC.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check all boxes that apply):

- ☒ No fee required.
- ☐ Fee paid previously with preliminary materials;
- ☐ Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11



AXCELLA HEALTH INC. D/B/A AXCELLA THERAPEUTICS

**P.O. Box 1270
Littleton, Massachusetts 01460**

**NOTICE OF 2023 ANNUAL MEETING OF
STOCKHOLDERS
To be held on September 11, 2023**

Notice is hereby given that the 2023 Annual Meeting of Stockholders, or Annual Meeting, of Axcella Health Inc. (d/b/a Axcella Therapeutics) (the “Company” or “Axcella”), which will be a virtual-only meeting to be held on September 11, 2023, at 10:00 AM Eastern Time. The purpose of the virtual Annual Meeting is the following:

1. To elect three Class I directors to our board of directors, to serve until the 2026 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 Deloitte & Touche LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023;
3. To approve amendments to our restated certificate of incorporation to effect a reverse stock split of our common stock at a ratio ranging from any whole number between 1-for-2 and 1-for-25, as determined by our board of directors in its discretion, subject to the board of directors’ authority to abandon such amendments;
4. To approve an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal No. 3 (as defined below); 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 the directors relates solely to the election of the Class I directors nominated by the board of directors.

Only Axcella stockholders of record at the close of business on August 17, 2023, will be entitled to vote at the Annual Meeting and any adjournment or postponement thereof.

Your vote is important. Whether or not you are able to attend the meeting, it is important that your shares be represented. To ensure that your vote is recorded, please vote as soon as possible, even if you plan to attend the meeting, by submitting your proxy via the Internet at the address listed on the proxy card or by signing, dating and returning the proxy card.

Our Annual Meeting will be held in a virtual-only format. You may attend the meeting, submit questions, and vote your shares electronically during the meeting via live webcast by visiting: www.virtualshareholdermeeting.com/AXLA2023.

We urge you to vote your shares over the Internet or by telephone as provided in the instructions set forth on the enclosed proxy card, or complete, date, sign and promptly return the enclosed proxy card whether or not you expect to attend the Annual Meeting. A postage-prepaid envelope, addressed to

Broadridge Financial Solutions, which is serving as proxy tabulator, has been enclosed for your convenience. If you attend the Annual Meeting in person, your proxy will, upon your written request, be returned to you and you may vote your shares in person.

By order of the board of directors,

/s/ William R. Hinshaw, Jr.

William R. Hinshaw, Jr.

President and Chief Executive Officer

Littleton, Massachusetts
August 18, 2023

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AXCELLA HEALTH INC. D/B/A AXCELLA THERAPEUTICS

**P.O. Box 1270
Littleton, Massachusetts 01460**

**PROXY STATEMENT
FOR THE 2023 ANNUAL MEETING OF
STOCKHOLDERS TO BE HELD SEPTEMBER 11, 2023**

This proxy statement contains information about the 2023 Annual Meeting of Stockholders, or the Annual Meeting, of Axcella Health Inc. (d/b/a Axcella Therapeutics), which will be a virtual-only meeting held on September 11, 2023, at 10:00 AM Eastern Time. The board of directors of Axcella is using this proxy statement to solicit proxies for use at the virtual Annual Meeting. In this proxy statement, the terms “we,” “us,” and “our” refer to Axcella. The mailing address of our principal executive offices is P.O. Box 1270, Littleton, Massachusetts 01460.

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 this proxy statement. 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 to Stockholders for the fiscal year ended December 31, 2022 first available to stockholders on or around August 18, 2023.

We are an “emerging growth company” under applicable federal securities laws and therefore permitted to conform with certain reduced public company reporting requirements. As an emerging growth company, we provide in this proxy statement the scaled disclosure permitted under the Jumpstart Our Business Startups Act of 2012 (the JOBS Act). In addition, as an emerging growth company, we are not required to conduct votes seeking approval, on an advisory basis, of the compensation of our named executive officers or the frequency with which such votes must be conducted. We will remain an “emerging growth company” until the earliest of (i) the last day of the fiscal year following the fifth anniversary of our initial public offering in May 2019; (ii) the last day of the fiscal year in which our total annual gross revenue is equal to or more than \$1.235 billion; (iii) the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or SEC.

**Important Notice Regarding the Availability of Proxy Materials for
the Annual Meeting of Stockholders to be Held on September 11, 2023:**

**This proxy statement and our 2022 Annual Report to Stockholders, or 2022 Annual Report, are
available for viewing, printing and downloading at www.proxyvote.com.**

Because we have elected to utilize the “full set delivery” option, we are delivering paper copies of all of the proxy materials to all our stockholders, as well as providing access to those proxy materials on a publicly accessible website. A copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the Securities and Exchange Commission on March 30, 2023, except for exhibits, will be furnished without charge to any stockholder upon written request to Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 01460, Attention: Corporate Secretary. This proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, are also available on the SEC’s website at www.sec.gov.

AXCELLA**PROXY STATEMENT
FOR THE 2023 ANNUAL MEETING OF STOCKHOLDERS****GENERAL INFORMATION****When are this Proxy Statement and the accompanying materials scheduled to be sent to stockholders?**

This Proxy Statement, our Annual Report to Stockholders for the fiscal year ended December 31, 2022, and the proxy card are first being mailed to our stockholders on or about August 22, 2023. In accordance with SEC rules, we are advising our stockholders of the availability on the Internet of our proxy materials related to our forthcoming Annual Meeting. Because we have elected to utilize the “full set delivery” option, we are delivering to all stockholders paper copies of all of the proxy materials, as well as providing access to those proxy materials on a publicly accessible website. This Proxy Statement, and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 are available to our stockholders at www.virtualshareholdermeeting.com/AXLA2023.

Why hold a virtual meeting?

We believe that hosting a virtual meeting this year is in the best interest of the Company and its stockholders, enabling increased stockholder attendance and participation because stockholders can participate from any location around the world. Additionally, we believe a virtual format significantly contributes to our efforts to maintain a safe and healthy environment for our directors, members of management and stockholders who wish to attend the Annual Meeting. You will be able to attend the Annual Meeting online and submit your questions by visiting www.virtualshareholdermeeting.com/AXLA2023. You also will be able to vote your shares electronically at the Annual Meeting by following the instructions below.

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 August 17, 2023.

How many votes can be cast by all stockholders?

There were 73,692,745 shares of our common stock, par value \$0.001 per share, outstanding as of the close of business on August 17, 2023, all of which are entitled to vote with respect to all matters to be acted upon at the virtual 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 August 17, 2023.

How do I vote?

If you are a stockholder of record, you can vote in one of the following ways:

- **By Internet.** You may vote at www.proxyvote.com, 24 hours a day, seven days a week, by following the instructions at that site for submitting your proxy electronically. You will be required to enter the control number provided in the proxy card. Votes submitted through the Internet must be received no later than 11:59 p.m. Eastern Time on September 10, 2023.
- **By QR Code.** You may vote using your mobile device to scan the QR code on your proxy card. Votes submitted by scanning your QR code must be received no later than 11:59 p.m. Eastern Time on September 10, 2023.

- **By Mail.** You may submit a proxy to vote by completing, dating and signing the proxy card that accompanies this proxy statement and promptly mailing it in the enclosed postage- prepaid envelope and return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717. You do not need to put a stamp on the enclosed envelope if you mail it in the United States. If you are mailed or otherwise receive or obtain a proxy card or voting instruction form, and you choose to vote by telephone or by internet, you do not have to return your proxy card or voting instruction form. Votes submitted through the mail must be received no later than September 10, 2023.
- **By Telephone.** You may vote using a touch-tone telephone by calling 1-800-690-6903, 24 hours a day, seven days a week. You will be required to provide the control number provided in the proxy card. Votes submitted by telephone must be received no later than 11:59 p.m. Eastern Time on September 10, 2023. Beneficial owners may vote using a touch-tone telephone by calling 1-800-454-8683, 24 hours a day, seven days a week.

If the Annual Meeting is adjourned or postponed, the deadlines above may be extended.

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

If any other matters are properly presented for consideration at the virtual Annual Meeting, including, among other things, consideration of a motion to adjourn the virtual 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 virtual Annual Meeting.

How do I revoke my proxy?

You may revoke your proxy by (1) following the instructions on the enclosed proxy card and entering a new vote by mail that we receive before the start of the virtual Annual Meeting or over the Internet by the cutoff time of 11:59 p.m. Eastern Time on September 10, 2023, (2) attending and voting at the virtual Annual Meeting (although attendance at the virtual Annual Meeting will not in and of itself revoke a proxy), or (3) by filing an instrument in writing revoking the proxy or another duly executed proxy bearing a later date with our Corporate Secretary. Any written notice of revocation or subsequent proxy card must be received by our Corporate Secretary prior to the taking of the vote at the virtual 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 Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 01460, 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 is a quorum reached?

Our Amended and Restated Bylaws, or bylaws, provide that a majority of the shares entitled to vote, present in person or represented by proxy, will constitute a quorum for the transaction of business at the Annual Meeting. There are 73,692,745 shares of our common stock outstanding and entitled to vote on the record date. Therefore, a quorum will be present if 36,846,373 shares of our common stock are present in person or represented by executed proxies timely received by us at the Annual Meeting. Shares present virtually during the Annual Meeting will be considered shares of common stock represented in person at the meeting.

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

How is the vote counted?

Under our bylaws, any proposal other than an election of directors is decided by a majority of the votes properly cast for and against such proposal, except where a larger vote is required by law or by our Restated Certificate of Incorporation, or certificate of incorporation, or bylaws. Each holder of common stock is entitled to one vote for each share held by such shareholder as of the record date on each matter to come before the Annual Meeting, including the election of a director. Votes cast during the Annual Meeting or by proxy by mail, via the Internet or by telephone will be tabulated by the inspector of election appointed for the Annual Meeting, who will also determine whether a quorum is present. 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 No. 1 is a “non-discretionary” item. If you do not instruct your broker how to vote with respect to this proposal, your broker may not vote for this proposal, and those votes will be counted as broker “non-votes.” Proposal No. 2, Proposal No. 3 and Proposal No. 4 are each considered to be a “discretionary” item, and your brokerage firm will be able to vote on this proposal even if it does not receive instructions from you.

To be elected, the directors nominated via Proposal No. 1 must receive a plurality of the votes cast on the election of directors, meaning that the director nominees receiving the most votes will be elected. Shares voting “withheld” have no effect on the election of directors. Proposal No. 2, Proposal No. 3 and Proposal No. 4 must receive the affirmative vote of the holders of a majority of the votes cast properly thereon. You may vote “for,” “against” or “abstain” with respect to such proposals. Abstentions and broker non-votes, if any, will have no effect on the outcome of the vote on these proposals.

What if a quorum is not present at the Annual Meeting?

If a quorum is not present or represented at the scheduled time of the Annual Meeting, (i) the chairperson of the Annual Meeting or (ii) a majority in voting power of the stockholders entitled to vote at the Annual Meeting, present in person, including by remote communication, or represented by proxy, may adjourn the Annual Meeting until a quorum is present or represented.

Who pays the cost for soliciting proxies?

We are making this solicitation and will pay the entire cost of preparing and distributing our proxy materials and soliciting votes. If you choose to access the proxy materials or vote over the Internet, you are responsible for any Internet access charges that you may incur. Our officers and employees may, without compensation other than their regular compensation, solicit proxies through further mailings, personal conversations, facsimile transmissions, e-mails, or otherwise. We have hired 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 does the Board of Directors recommend that I vote?

The board of directors recommends that you vote:

- FOR the nominees to the board of directors set forth in this Proxy Statement (Proposal No. 1).

- FOR the ratification of the appointment of Deloitte & Touche LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023 (Proposal No. 2).
- FOR the approval of amendments to our Certificate of Incorporation to effect a reverse stock split of our Common Stock (Proposal No. 3).
- FOR the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal No. 3 (Proposal No. 4).

How many votes are required to approve each proposal?

The table below summarizes the proposals that will be voted on, the vote required to approve each item and how votes are counted:

Proposal	Votes Required	Voting Options	Impact of “Withhold” or “Abstain” Votes	Broker Discretionary Voting Allowed
Proposal No. 1: Election of Directors	The plurality of the votes cast. This means that the three nominees receiving the highest number of affirmative “FOR” votes will be elected as Class I directors.	“FOR ALL” “WITHHOLD ALL” “FOR ALL EXCEPT”	None ⁽¹⁾	No ⁽³⁾
Proposal No. 2: Ratification of Appointment of Independent Registered Public Accounting Firm	The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively (excluding abstentions) at the Annual Meeting by the holders entitled to vote thereon.	“FOR” “AGAINST” “ABSTAIN”	None ⁽²⁾	Yes ⁽⁴⁾
Proposal No. 3: Approval of amendments to our restated certificate of incorporation to effect a reverse stock split of our Common Stock	The affirmative vote of holders of a majority of the outstanding shares of our Common Stock entitled to vote at the Annual Meeting.	“FOR” “AGAINST” “ABSTAIN”	None ⁽²⁾	Yes ⁽⁴⁾
Proposal No. 4: Approval of an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal No. 3	The affirmative vote of the holders of a majority in voting power of the votes cast affirmatively or negatively (excluding abstentions) at the Annual Meeting by the holders entitled to vote thereon.	“FOR” “AGAINST” “ABSTAIN”	None ⁽²⁾	Yes ⁽⁴⁾

- (1) Votes that are “withheld” will have the same effect as an abstention and will not count as a vote “FOR” or “AGAINST” a director, because directors are elected by plurality voting. A vote marked as “withhold” will, therefore, not affect the outcome of this proposal.
- (2) A vote marked as an “Abstention” is not considered a vote cast and will, therefore, not affect the outcome of this proposal.
- (3) As this proposal is not considered a discretionary matter, brokers lack authority to exercise their discretion to vote uninstructed shares on this proposal.

- (4) As this proposal is considered a discretionary matter, brokers are permitted to exercise their discretion to vote uninstructed shares on this proposal. We do not expect any broker non-votes on this proposal.

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

The required notice must be in writing and received by our corporate secretary at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year's annual meeting. However, in the event that the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, or if no annual meeting were held in the preceding year, a stockholder's notice must be so received no earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the tenth day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs.

In addition, any stockholder proposal intended to be included in the proxy statement for the next annual meeting of our stockholders in 2024 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 no later than April 21, 2024. If the date of the annual meeting is moved by more than 30 days from the date contemplated at the time of the previous year's proxy statement, then notice must be received within a reasonable time before we begin to print and send proxy materials. If that happens, we will publicly announce the deadline for submitting a proposal in a press release or in a document filed with the SEC.

How can I know the voting results?

We plan to announce preliminary voting results at the virtual 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 virtual 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 Deloitte & Touche LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023. Proposal No. 3 requests the stockholders to approve an amendment to our restated certificate of incorporation to effect a reverse stock split of our Common Stock at a ratio ranging from any whole number between 1-for-2 and 1-for-25, as determined by our board of directors in its discretion, subject to the board of directors' authority to abandon such amendments. Proposal No. 4 requests the stockholders approve an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal No. 3. Each of the proposals is discussed in more detail in the pages that follow.

PROPOSAL NO. 1 — ELECTION OF CLASS III DIRECTORS

Our board of directors currently consists of ten 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 Torben Straight Nissen, Ph.D., Michael Rosenblatt, M.D. and William D. “Chip” Baird, and their terms will expire at the annual meeting of stockholders to be held in 2023.
- The Class II directors are Gary P. Pisano, Ph.D., Cristina M. Rondinone, Ph.D. and Paul J. Sekhri, their terms will expire at the annual meeting of stockholders to be held in 2024.
- The Class III directors are William R. Hinshaw, Jr., Martin Hendrix, Robert Rosiello and Catherine Angell Sohn, Pharm.D., and their terms will expire at the 2025 Annual Meeting.

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 Torben Straight Nissen, Ph.D., Michael Rosenblatt, M.D. and William D. “Chip” Baird, for election as the Class I directors at the virtual 2023 Annual Meeting. Each of Dr. Straight Nissen, Dr. Rosenblatt and Mr. Baird 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 Director

The following table identifies our director nominees and sets forth their principal occupation and business experience during the last five years and their age as of July 24, 2023.

Name	Positions and Offices Held with Axcella	Director Since	Age
Torben Straight Nissen, Ph.D.	Director	2022	52
Michael Rosenblatt, M.D.	Director	2022	75
William D. “Chip” Baird	Director	2018	51

Torben Straight Nissen, Ph.D., has served as a member of our board of directors since October 2022. Dr. Straight Nissen is a senior partner at Flagship Pioneering, he joined Flagship in November 2016. Dr. Straight Nissen served on the board of directors of Ring Therapeutics, Inc. from August 2018 to December 2021 and since March 2021 has served as founding chief executive officer of FL84 Inc. From November 2016 to July 2019, he served as president of Rubius Therapeutics (Nasdaq: RUBY), he also served on the board of directors of Rubius from November 2016 to August 2018. From July 2011 to November 2016 Dr. Straight Nissen held positions of increasing responsibility at Pfizer, with his last position as Vice President, heading up Pfizer’s Worldwide R&D Strategic Portfolio Management. In this role, he oversaw Pfizer’s portfolio spanning from discovery up to Phase 3 trials across multiple therapeutic areas, including oncology, inflammation and immunology, rare diseases, cardiovascular and metabolic disease, neuroscience, and vaccines. Previously, he was responsible for the portfolio, strategy and operations functions within Pfizer’s BioTherapeutics Division and ensured efficient advancement of protein therapeutics, cell therapies, gene therapies and vaccines from discovery through development. He also served as chief operating officer for the Centers for Therapeutic Innovation, a pioneering R&D unit within Pfizer that drives product development partnerships with world-leading academic medical centers. As COO, Dr. Straight Nissen

headed up that organization’s portfolio management, business development, finance and operations functions, and he was one of the key drivers behind establishing the unit. Prior to joining Pfizer, Dr. Straight Nissen served as chief operating officer at Ascendis Pharma (Nasdaq: ASND) from April 2008 to June 2011, advancing the company’s portfolio of new, innovative prodrugs from discovery to clinical proof-of-concept. Earlier, Dr. Straight Nissen served in various leadership positions at Maxygen, a molecular evolution and advanced protein engineering company, including the role of managing director of R&D and senior vice president of global project management. He began his career at Novo Nordisk with a focus on protein engineering. Dr. Straight Nissen holds a Ph.D. in molecular biology and biochemical engineering from the Technical University of Denmark and Carlsberg Laboratories and a Master of Science degree in chemical engineering from the Technical University of Denmark. We believe that Dr. Straight Nissen’s extensive business and financial experience qualifies him to serve on our board of directors.

Michael Rosenblatt, M.D., has served as a member of our board of directors since May 2022.

Dr. Rosenblatt 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 Rubius Therapeutics, Inc. (Nasdaq: RUBY) and 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 business and financial experience qualifies him to serve on our board of directors.

William D. “Chip” Baird has served as a member of our board of directors since June 2018. He joined 2seventy bio, Inc. as Chief Financial Officer in November 2021, as Chief Financial Officer for bluebird bio, Inc. from February 2019 to October 2021, and as Chief Financial Officer of Amicus Therapeutics, Inc., a pharmaceutical company, from April 2012 to December 2018. Mr. Baird holds an M.B.A. in finance from The Wharton School of the University of Pennsylvania and a B.S.F.S. in international affairs from the Edmund A. Walsh School of Foreign Service of Georgetown University. We believe Mr. Baird’s broad experience in pharmaceutical finance and executive management roles qualifies him 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 cast, meaning that the director nominees receiving the most votes will be elected. You may vote FOR all the nominees, FOR any one of the nominees, WITHHOLD your vote from all the nominees or WITHHOLD your vote from any one of the nominees. Shares voting “withheld” and broker non-votes, if any, will have no effect on the election of directors.

The proxies will be voted in favor of the above nominee 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 directors, 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 Torben Straight Nissen, Ph.D., Michael Rosenblatt, M.D. and William D. “Chip” Baird, as the Class I directors, to serve for a three-year term ending at the annual meeting of stockholders to be held in 2026.

Directors Continuing in Office

The following table identifies our directors and sets forth their principal occupation and business experience during the last five years and their ages as of July 24, 2023.

Name	Position and Offices Held with Axcella	Director Since	Class and Year in Which Term Will Expire	Age
Gary P. Pisano, Ph.D.	Director	2011	Class II – 2024	61
Cristina M. Rondinone, Ph.D.	Director	2018	Class II – 2024	63
Paul J. Sekhri	Director	2020	Class II – 2024	65
William R. Hinshaw, Jr.	President, Chief Executive Officer and Director	2018	Class III – 2025	54
Martin Hendrix	Director	2022	Class III – 2025	55
Robert Rosiello	Director, Chairman	2022	Class III – 2025	65
Catherine Angell Sohn, Pharm. D.	Director	2019	Class III – 2025	70

Class II Directors (Term Expires at 2024 Annual Meeting)

Gary P. Pisano, Ph.D., has served as a member of our board of directors since October 2011. Dr. Pisano is the Harry E. Figgie, Jr. Professor of Business Administration and Senior Associate Dean for Promotions and Tenure at the Harvard Business School. He has served on the Harvard faculty since 1988. Dr. Pisano's research and teaching focus on technology and operations strategy, the management of innovation and intellectual property, and competitive strategy. For more than two decades, he has consulted extensively on these issues with companies in the pharmaceutical, biotechnology, medical device, specialty chemical and healthcare industries. He has previously served as a director of Axovant Sciences Ltd. (Nasdaq: AXON) and Patheon NV (NYSE: PTHN). Dr. Pisano holds a Ph.D. in business administration from the University of California, Berkeley and a B.A. in economics from Yale University. We believe that Dr. Pisano's knowledge of business administration, innovation, and strategy, particularly within the healthcare industry, qualifies him to serve on our board of directors.

Cristina M. Rondinone, Ph.D., has served as a member of our board since June 2018. Since June of 2020, Dr. Rondinone has consulted for pharmaceutical and biotechnology companies at CMR Pharma Consulting and in 2022 became Founder and CEO of a new startup company in stealth mode. Dr. Rondinone served as President of Cellarity Inc. from September 2019 to June 2020. Prior to this position, from March 2011 to September 2019, Dr. Rondinone served in roles of increasing responsibility at MedImmune, LLC, a wholly owned subsidiary of AstraZeneca, most recently as Senior Vice President R&D, Head of Cardiovascular, Renal and Metabolic Diseases Innovative Medicines and Early Development. Dr. Rondinone served in different roles in research and development at Hoffmann-La Roche (2005-2011) and Abbott Laboratories (1998-2005). Dr. Rondinone holds a Docent in molecular medicine from the University of Goteborg, Sweden School of Medicine and a M.Sc. and Ph.D. in biological sciences from the University of Buenos Aires. We believe that Dr. Rondinone's extensive biopharmaceutical research and development experience qualifies her to serve on our board of directors.

Paul J. Sekhri has served as a member of our board of directors since May 2022. Mr. Sekhri is a Director of Longboard Pharmaceuticals, Inc., Ipsen S.A., Compugen Ltd., Pharming N.V., where he is Chairman, Oryn Therapeutics, and Veeva Systems. He most recently served as the chief executive officer of eGenesis where he is now a member of the Board and a Senior Advisor to the Chairman. Before eGenesis, Mr. Sekhri served as president and chief executive officer of Lycera Corp. Prior to Lycera, Mr. Sekhri served as Senior Vice President, Integrated Care at Sanofi. Prior to Sanofi, he served as group executive vice president, global business development, and chief strategy officer for Teva Pharmaceuticals Industries, Ltd., and earlier, operating partner and head of the Biotechnology Operating Group at TPG Biotech. Previously, Mr. Sekhri founded Cerimon Pharmaceuticals where he served as president and chief executive officer. Prior to founding Cerimon, he was president and chief business officer of ARIAD Pharmaceuticals. Earlier in his career, Mr. Sekhri held various senior positions at Novartis AG, including senior vice president, head of global search and evaluation, business development and licensing, and global head, early commercial development. Mr. Sekhri completed graduate work in neuroscience at the University of Maryland School of Medicine in Baltimore and received his B.S. in zoology from the University of Maryland, College Park. We believe that Mr. Sekhri's extensive business and financial experience qualifies him to serve on our board of directors.

Class III Directors (Term Expires at 2025 Annual Meeting)

William R. Hinshaw, Jr. has served as our President and Chief Executive Officer and as a member of our board of directors since June 2018. Prior to joining us, Mr. Hinshaw served in increasing roles of responsibility at Novartis Pharmaceuticals Corporation, a pharmaceutical company, from December 2003 until November 2017, most recently as the Executive Vice President and Head of U.S. Oncology. Mr. Hinshaw holds a B.S. in molecular biology from the University of Wisconsin. We believe that Mr. Hinshaw's qualifications, attributes and skills, including his experience in operations management and executive leadership, qualify him to serve on our board of directors.

Martin Hendrix, Ph.D., has served as a member of our board of directors since May 2022. Dr. Hendrix joined Nestlé Health Science US in April 2012, and currently serves as its Head of Global Business Development and M&A. In this position, Dr. Hendrix oversees all deal flow of Nestlé Health Science and is also responsible for its venture capital partnerships and direct equity investments. Dr. Hendrix has represented Nestlé on the boards of Enterome, Microbiome Diagnostic Partners, Procise Dx, Bodymed AG, as well as board observer roles for Evelo, Kaleido and Senda. Prior to joining Nestlé, from January 1998 to March 2012, Dr. Hendrix was a research chemist and subsequently a member of the Strategic Planning Group, as well as a Senior Director of Business Strategy at Bayer AG. Dr. Hendrix currently serves on the board of directors of Procise Dx, Bodymed AG, Prometheus Biosciences Inc., and Senda (observer). Dr. Hendrix holds a Ph.D. in Chemistry from The Scripps Research Institute, an M.S. in Chemistry from the Georgia Institute of Technology. We believe that Dr. Hendrix's extensive technical and business experience qualifies him to serve on our board of directors.

Robert Rosiello has served as a member of our board of directors since October 2022. Mr. Rosiello is an Executive Partner at Flagship Pioneering, which he joined in 2018 and where he focuses on building capability to help originate, manage, and grow new Flagship companies. He also works with senior leadership to drive Flagship's strategy, institution building, and growth initiatives. From September 1984 to June 2015, Mr. Rosiello worked at McKinsey & Company advising CEOs and boards of leading health care, technology, and consumer companies. He served as a senior partner for 18 years and was a member of McKinsey's Senior Partner Review and Compensation Committees. From July 2015 to August 2016, Mr. Rosiello was both Executive Vice President and Chief Financial Officer at Valeant Pharmaceuticals, where he led the finance, human resources, and IT functions. He has served on the Board Evelo Biosciences, Inc. (NASDAQ: EVLO) since April 2023. He currently serves on the Board and Executive Committee of Catholic Charities of New York and the Central Selection Committee of the Morehead-Cain Foundation. He previously served on the Boards of the Pew Research Center and Inari Agriculture. Mr. Rosiello received his B.A. in economics from the University of North Carolina, where he was a Morehead Scholar and graduated Phi Beta Kappa, an M.Sc. in economics from the London School of Economics, and an M.B.A. from Harvard Business School. We believe that Mr. Rosiello's extensive business and financial experience qualifies him to serve on our board of directors.

Catherine Angell Sohn, Pharm.D., has served as a member of our board of directors since August 2019. Dr. Sohn has over 30 years of biopharmaceutical leadership and operational experience at GlaxoSmithKline and currently serves on the boards of directors of Jazz Pharmaceuticals plc (Nasdaq: JAZZ), Maze Therapeutics (private) and BioEclipse Therapeutics (private). Dr. Sohn is also Adjunct Professor at UCSF, her alma mater. Since January 2011, as President of Sohn Health Strategies, Dr. Sohn has advised CEOs and Boards of life science companies on strategy, strategic product development, partnering/M&A, commercialization of new medicines and vaccines. Dr. Sohn was formerly senior vice president, worldwide business development, and a member of the global executive committee at GlaxoSmithKline's Consumer Healthcare division where she led U.S. and global transactions. Previously she was vice president worldwide strategic product development for the cardiovascular, metabolic and pulmonary therapeutic areas at SmithKline Beecham Pharmaceuticals where along with the senior vice president of R&D, she was responsible for decisions to move assets into phase 1, strategic product development and portfolio prioritization, and where she had global responsibility for commercial strategy and global commercialization, including overseeing the global launch of Coreg for congestive heart failure which became a \$1 billion indication. Earlier in her career, as an entrepreneur within a large company, she started the U.S. Vaccine Business, built the team, and led the launch of SB's first vaccine in the U.S. and helped shape the global vaccine portfolio pipeline as a member of the International Vaccine Steering Committee. Subsequently, she

led the U.S. commercialization of the company's largest neuroscience product which grew to >\$1 billion in sales and as a member of the Global CNS Therapeutic Area Steering Team, led the focus to expand development into anxiety disorders. Dr. Sohn earned a Doctor of Pharmacy degree from the University of California, San Francisco, a Corporate Directors Certificate from Harvard Business School, a Certificate of Professional Development from Wharton, a Certificate from Berkeley Law for ESG: Navigating the Board's Role and is a Certified Licensing Professional Emeritus. We believe that Dr. Sohn's extensive experience with product development, strategic marketing, and business development transactions in the pharmaceutical industry qualifies her to serve on our board of directors.

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

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

Executive Officers Who Are Not Directors

The following table identifies our executive officers and sets forth their current positions at Axcella and their ages as of July 31, 2023. Biographical information for Mr. Hinshaw, our President and Chief Executive Officer, is set forth under the heading "Directors Continuing in Office" above.

<u>Name</u>	<u>Position Held with Axcella</u>	<u>Officer Since</u>	<u>Age</u>
Paul Fehlner, J.D., Ph.D.	Senior Vice President, Chief Legal Officer and Corporate Secretary	2018	60

Paul Fehlner, J.D., Ph.D., has served as our Senior Vice President, Chief Legal Officer and Corporate Secretary since September 2020 and previously served as our Senior Vice President and Chief Intellectual Property Officer from April 2018 to September 2020. In addition, Dr. Fehlner has served as a Principal at Life Sciences Innovation LLC, a consulting firm that he founded, since December 2017. From November 2008 through November 2017, Dr. Fehlner served as Global Head of Intellectual Property at Novartis Pharma AG in Basel, Switzerland. Prior to joining Novartis, Dr. Fehlner practiced IP law in leading firms in the U.S. along with working in-house at Rhone-Poulenc Rorer. Dr. Fehlner holds a J.D. from Fordham University School of Law, a Ph.D. in immunology and biochemistry from The Rockefeller University and a B.S. in chemistry from Haverford College.

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 or she was or is to be selected as an executive officer.

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

**PROPOSAL NO. 2 — RATIFICATION OF THE APPOINTMENT OF DELOITTE & TOUCHE LLP AS
AXCELLA'S INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE
FISCAL YEAR ENDING DECEMBER 31, 2023**

Axcella's stockholders are being asked to ratify the appointment by the audit committee of the board of directors of Deloitte & Touche LLP as Axcella's independent registered public accounting firm for the fiscal year ending December 31, 2023. Deloitte & Touche LLP has served as Axcella's independent registered public accounting firm since 2012.

The audit committee is solely responsible for selecting Axcella's independent registered public accounting firm for the fiscal year ending December 31, 2023. Stockholder approval is not required to appoint Deloitte & Touche LLP as Axcella's independent registered public accounting firm. However, the board of directors believes that submitting the appointment of Deloitte & Touche 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 Deloitte & Touche LLP. If the selection of Deloitte & Touche 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 Axcella and its stockholders.

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

Axcella incurred the following fees from Deloitte & Touche LLP for the audit of the consolidated financial statements and for other services provided during the years ended December 31, 2022, and 2021.

Fee Category	Fiscal Year 2022 (\$)	Fiscal Year 2021 (\$)
Audit and audit-related fees ⁽¹⁾	\$628,893	\$588,307
Tax fees	—	—
All other fees	—	—
Total Fees	\$628,893	\$588,307

- (1) Consists of fees for the audit of our annual financial statements, reviews of quarterly financial statements included in Quarterly Reports on Form 10-Q, services provided in connection with SEC filings, including consents and comfort letters, and a subscription to the Deloitte Accounting Research Tool.

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 2022 and 2021 fiscal years, no services were provided to us by Deloitte & Touche 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 the affirmative vote of a majority of the votes properly cast on the proposal. Shares that are voted "abstain" and broker non-votes, if any, will not affect the outcome of this proposal.

The board of directors recommends voting **FOR** Proposal No. 2 to ratify the appointment of Deloitte & Touche LLP as Axcella's independent registered public accounting firm for the fiscal year ending December 31, 2023.

PROPOSAL No. 3 — APPROVAL OF AN AMENDMENT TO OUR RESTATED CERTIFICATE OF INCORPORATION TO EFFECT A REVERSE STOCK SPLIT OF OUR COMMON STOCK

General

Our board of directors has approved and, subject to stockholder approval, adopted a resolution (1) declaring advisable, and recommending to our stockholders for their approval, amendment to the Certificate of Incorporation (the “Reverse Stock Split Amendment”), to give our board of directors discretionary authority to effect a reverse stock split of all of the outstanding shares of our Common Stock at a ratio ranging from any whole number between 1-for-2 and 1-for-25 (“Reverse Stock Split”), with the exact ratio within such range to be determined by the board of directors at its discretion, subject to the board of directors’ authority to determine when to file the amendment and to abandon the other amendments notwithstanding prior stockholder approval of such amendments, (2) directing that such proposed amendments to our Certificate of Incorporation be submitted to our stockholders for their approval and adoption, and (3) recommending that our stockholders approve and adopt each of the proposed amendments. The text of the form of Reverse Stock Split Amendment, which would be filed with the Delaware Secretary of State by means of the Certificate of Amendment to effect the Reverse Stock Split, are set forth in Exhibit A to this Proxy Statement.

By approving this proposal, stockholders will approve alternative amendments to our Certificate of Incorporation pursuant to which a number of outstanding shares of our Common Stock between 2 and 25, inclusive, would be combined into one share of our Common Stock. The number of shares of Common Stock underlying outstanding equity awards and available for future awards under our equity incentive plans, as well as the number of shares issuable upon exercise of outstanding warrants, would also be proportionately reduced in the same manner as a result of the Reverse Stock Split. Upon receiving the stockholder approval, the board of directors will have the authority, but not the obligation, in its sole discretion, to elect, without further action on the part of the stockholders, whether to effect the Reverse Stock Split and, if so, to determine the Reverse Stock Split ratio from among the approved range described above and to effect the Reverse Stock Split by filing a Certificate of Amendment with the Secretary of State of the State of Delaware to be effective as of the Effective Time (as defined below), and all other amendments will be abandoned.

The board of directors’ decision as to whether and when to effect the Reverse Stock Split, and the ratio at which the Reverse Stock Split will be effected, will be based on a number of factors, including, without limitation, general market and economic conditions, the historical and then-prevailing trading price and trading volume of our Common Stock, the anticipated impact of the Reverse Stock Split on the trading price and trading volume of our Common Stock, the anticipated impact on our market capitalization, and the continued listing requirements of The Nasdaq Stock Market LLC (“Nasdaq”). Although our stockholders may approve the Reverse Stock Split, we will not effect the Reverse Stock Split if the board of directors does not deem it to be in the best interests of the Company and its stockholders.

Because the Reverse Stock Split will decrease the number of outstanding shares of our Common Stock by a ratio in the range of 1-for-2 to 1-for-25 but would not effect a decrease to the number of shares of Common Stock that the Company will be authorized to issue, the proposed Reverse Stock Split Amendments would result in a relative increase in the number of authorized and unissued shares of our Common Stock. For more information on the relative increase in the number of authorized shares of our Common Stock, see “— Principal Effects of the Reverse Stock Split-Issued and Outstanding Shares of Common Stock” below.

Purpose of the Reverse Stock Split

The board of directors submits the Reverse Stock Split Proposal to our stockholders for approval and adoption with the primary intent of increasing the per share price of our Common Stock for the following principal reasons:

- to ensure compliance with the \$1.00 per share of common stock minimum bid price requirement for continued listing on Nasdaq;
- to encourage increased investor interest in our Common Stock and promote greater liquidity for our stockholders; and

- to help attract, retain, and motivate employees.

Nasdaq Requirements for Continued Listing

Our Common Stock is quoted on Nasdaq under the symbol “AXLA.” For our Common Stock to continue trading on Nasdaq, the Company must comply with various listing standards, including that the Company maintain a minimum closing bid price of \$1.00 per share of common stock.

On December 30, 2022, we received a letter from the Listing Qualifications Department of Nasdaq notifying us that, for 30 consecutive business days, the closing bid price for the Company’s Common Stock closed below the minimum \$1.00 per share required for continued listing on Nasdaq pursuant to Nasdaq Listing Rule 5450(a)(1) (the “Minimum Bid Price Requirement”). Under Nasdaq Listing Rule 5810(c)(3) (A), the Company was granted an initial 180 calendar day grace period, or until June 28, 2023, to regain compliance with the Minimum Bid Price Requirement, which required our Common Stock to have a minimum closing bid price of at least \$1.00 per share for a minimum of 10 consecutive business days during the 180 calendar-day grace period. The Company did not regain compliance with minimum bid price requirement by June 28, 2023 and the Listing Qualifications Department of Nasdaq did not grant the Company a second grace period to do so. The Company has a hearing before a Nasdaq Hearings Panel (the “Hearings Panel”) scheduled for September 7, 2023 to address the deficiencies and present a plan to regain compliance. There can be no assurance that the Company will be able to regain compliance or that Nasdaq will extend the compliance period.

If we fail to regain compliance within the applicable compliance period, Nasdaq will provide written notification that the Company’s securities will be delisted. At that time, we may appeal Nasdaq’s determination to a Hearings Panel. If we appeal, the Hearings Panel will request a plan to regain compliance. Hearings Panels have generally viewed a reverse stock split as the only definitive plan to resolve a bid price deficiency. There can be no assurance that such an appeal would be successful.

If our Common Stock is delisted from Nasdaq, the board of directors believes that the trading market for our Common Stock could become significantly less liquid, which could reduce the trading price of our Common Stock and increase the transaction costs of trading in shares of our Common Stock. Such delisting from Nasdaq and continued or further decline in our stock price could also impair our ability to raise additional necessary capital through equity or debt financing.

If the Reverse Stock Split is effected, it would cause a decrease in the total number of shares of our Common Stock outstanding and increase the market price of our Common Stock. The board of directors intends to effect the Reverse Stock Split only if it believes that a decrease in the number of shares outstanding is in the best interests of the Company and its stockholders.

IF THIS PROPOSAL IS NOT APPROVED, WE MAY BE UNABLE TO MAINTAIN THE LISTING OF OUR COMMON STOCK ON NASDAQ, WHICH COULD ADVERSELY AFFECT THE LIQUIDITY AND MARKETABILITY OF OUR COMMON STOCK AND ADVERSELY IMPACT OUR ABILITY TO COMPLY WITH CERTAIN CONTRACTUAL OBLIGATIONS REQUIRED BY OUR SECURED LOAN AGREEMENTS.

Investor Interest and Liquidity

In addition, in approving the proposed Reverse Stock Split Amendments, the board of directors considered that the Reverse Stock Split and the resulting increase in the per share price of our Common Stock could encourage increased investor interest in our Common Stock and promote greater liquidity for our stockholders.

In the event that our Common Stock were to be delisted from Nasdaq, our Common Stock would likely trade in the over-the-counter market. If our Common Stock were to trade on the over-the-counter market, selling our Common Stock could be more difficult because smaller quantities of shares would likely be bought and sold, and transactions could be delayed. In addition, many brokerage houses and institutional investors have internal policies and practices that prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers,

further limiting the liquidity of our Common Stock. These factors could result in lower prices and larger spreads in the bid and ask prices for our Common Stock. Additionally, investors may be dissuaded from purchasing lower priced stocks because the brokerage commissions, as a percentage of the total transaction, tend to be higher for such stocks. Moreover, the analysts at many brokerage firms do not monitor the trading activity or otherwise provide coverage of lower priced stocks. A greater price per share of our Common Stock could allow a broader range of institutions to invest in our Common Stock. For all of these reasons, we believe the Reverse Stock Split could potentially increase marketability, trading volume, and liquidity of our Common Stock.

Employee Retention

The board of directors believes that the Company's employees and directors who are compensated in the form of our equity-based securities may be less incentivized and invested in the Company if we are no longer listed on Nasdaq. Accordingly, the board of directors believes that maintaining Nasdaq listing qualifications for our Common Stock, can help attract, retain, and motivate employees and members of our board of directors.

In light of the factors mentioned above, our board of directors unanimously approved the proposed Reverse Stock Split Amendments to effect the Reverse Stock Split as our best means of increasing and maintaining the price of our Common Stock to above \$1.00 per share in compliance with Nasdaq requirements.

Board of Directors Discretion to Implement the Reverse Stock Split

The board of directors believes that stockholder approval of a range of ratios (as opposed to a single reverse stock split ratio) is in the best interests of our Company and stockholders because it is not possible to predict market conditions at the time the Reverse Stock Split would be effected. We believe that a range of Reverse Stock Split ratios provides us with the most flexibility to achieve the desired results of the Reverse Stock Split. The Reverse Stock Split ratio to be selected by our board of directors will be a whole number in a range of 1-for-2 to 1-for-25. The board of directors can only authorize the filing of one Reverse Stock Split Amendment and all other Reverse Stock Split Amendments will be abandoned. The board of directors also has the authority to abandon all Reverse Stock Split Amendments.

In determining the Reverse Stock Split ratio and whether and when to effect the Reverse Stock Split following the receipt of stockholder approval, the board of directors will consider a number of factors, including, without limitation:

- our ability to maintain the listing of our Common Stock on Nasdaq;
- the historical trading price and trading volume of our Common Stock;
- the number of shares of our Common Stock outstanding immediately before and after the Reverse Stock Split;
- the then-prevailing trading price and trading volume of our Common Stock and the anticipated impact of the Reverse Stock Split on the trading price and trading volume of our Common Stock;
- the anticipated impact of a particular ratio on our market capitalization; and
- prevailing general market and economic conditions.

We believe that granting our board of directors the authority to set the ratio for the Reverse Stock Split is essential because it allows us to take these factors into consideration and to react to changing market conditions. If our board of directors chooses to implement the Reverse Stock Split, we will make a public announcement regarding the determination of the Reverse Stock Split ratio.

Risks Associated with the Reverse Stock Split

There are risks associated with the Reverse Stock Split, including that the Reverse Stock Split may not result in a sustained increase in the per share price of our Common Stock. There is no assurance that:

- the market price per share of our Common Stock after the Reverse Stock Split will rise in proportion to the reduction in the number of shares of our Common Stock outstanding immediately before the Reverse Stock Split;
- the Reverse Stock Split will result in a per share price that will increase the level of investment in our Common Stock by institutional investors or increase analyst and broker interest in the Company;
- the Reverse Stock Split will result in a per share price that will increase our ability to attract and retain employees and other service providers who receive compensation in the form of our equity-based securities; and
- the market price per share of our Common Stock will either exceed or remain in excess of the \$1.00 minimum bid price as required by Nasdaq, or that we will otherwise meet the requirements of Nasdaq for continued inclusion for trading on Nasdaq.

Stockholders should note that the effect of the Reverse Stock Split, if any, upon the trading price of our Common Stock cannot be accurately predicted. In particular, we cannot assure you that the price for a share of our Common Stock after the Reverse Stock Split will increase in proportion to the reduction in the number of shares of our Common Stock outstanding before the Reverse Stock Split or, even if it does, that such price will be maintained for any period of time.

Even if an increased per share price can be maintained, the Reverse Stock Split may not achieve the desired results that have been outlined above under “— Purpose of the Reverse Stock Split.” Moreover, because some investors may view the Reverse Stock Split negatively, we cannot assure you that the Reverse Stock Split will not adversely impact the market price of our Common Stock.

While our aim is that the Reverse Stock Split will be sufficient to maintain our listing on Nasdaq, it is possible that, even if the Reverse Stock Split results in a bid price for our Common Stock that exceeds \$1.00 per share of Common Stock, we may not be able to continue to satisfy Nasdaq’s additional requirements and standards for continued listing of our Common Stock on Nasdaq.

We believe that the Reverse Stock Split may result in greater liquidity for our stockholders. However, it is also possible that such liquidity could be adversely affected by the reduced number of shares outstanding after the Reverse Stock Split, particularly if the price of our Common Stock does not increase as a result of the Reverse Stock Split.

Additionally, if the Reverse Stock Split is implemented, it may increase the number of stockholders who own “odd lots” of less than 100 shares of common stock. A purchase or sale of less than 100 shares (an “odd lot” transaction) may result in incrementally higher trading costs through certain brokers, particularly “full service” brokers. Therefore, those stockholders who own fewer than 100 shares of our Common Stock following the Reverse Stock Split may be required to pay higher transaction costs if they sell their shares of our Common Stock.

Principal Effects of the Reverse Stock Split

Issued and Outstanding Shares of Common Stock

If the Reverse Stock Split is approved and effected, each holder of our Common Stock outstanding immediately prior to the effectiveness of the Reverse Stock Split will own a reduced number of shares of our Common Stock upon effectiveness of the Reverse Stock Split. The Reverse Stock Split would be effected simultaneously at the same exchange ratio for all outstanding shares of Common Stock, as required by our Certificate of Incorporation. Except for adjustments that may result from the treatment of fractional shares (as described below), the Reverse Stock Split would affect all stockholders uniformly and would not change any stockholder’s relative percentage ownership interest in the Company, voting rights, or other rights that accompany shares of our Common Stock. Shares of our Common Stock issued pursuant to the Reverse Stock Split will remain fully paid and non-assessable, and the par value per share of Common Stock will remain \$0.001.

Relative Increase in Number of Authorized Shares of Common Stock for Issuance

The Reverse Stock Split will not affect the number of authorized shares or the par value of our capital stock, which will remain at 150,000,000 shares of Common Stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value \$0.001 per share (“Preferred Stock,” and together with our Common Stock, our “Capital Stock”).

Although the number of authorized shares of our Capital Stock will not change as a result of the Reverse Stock Split, the number of shares of our Common Stock issued and outstanding will be reduced in proportion to the ratio selected by the board of directors. Thus, the Reverse Stock Split will effectively increase the number of authorized and unissued shares of our Common Stock available for future issuance by the amount of the reduction effected by the Reverse Stock Split.

If the proposed Reverse Stock Split Amendments are approved, all or any of the authorized and unissued shares of our Common Stock may be issued in the future for such corporate purposes and such consideration as the board of directors deems advisable from time to time, without further action by the stockholders of our Company and without first offering such shares to our stockholders. When and if additional shares of our Common Stock are issued, these new shares would have the same voting and other rights and privileges as the currently issued and outstanding shares of Common Stock, including the right to cast one vote per share.

Except pursuant to our equity incentive plans, we presently have no plan, commitment, arrangement, understanding, or agreement regarding the issuance of Common Stock. However, the Company regularly considers its capital requirements and may conduct securities offerings, including equity and/or equity linked offerings, in the future.

Because our stockholders have no preemptive rights to purchase or subscribe for any of our unissued shares of Common Stock, the future issuance of additional shares of Common Stock will reduce our current stockholders’ percentage ownership interest in the total outstanding shares of Common Stock. In the absence of a proportionate increase in our future earnings and book value, an increase in the number of our outstanding shares of Common Stock would dilute our projected future earnings per share, if any, and book value per share of all our outstanding shares of Common Stock. If these factors were reflected in the price per share of our Common Stock, the potential realizable value of a stockholder’s investment could be adversely affected. An issuance of additional shares could therefore have an adverse effect on the potential realizable value of a stockholder’s investment.

Equity Compensation Plans and Outstanding Equity-Based Awards

We maintain the Axcella Health Inc. Amended and Restated 2010 Stock Incentive Plan (the “2010 Plan”), the Axcella Health Inc. 2019 Stock Option and Incentive Plan (the “2019 Plan”), as amended, the 2019 Plan, and the Axcella Health Inc. 2019 Employee Stock Purchase Plan (the “ESPP”) (collectively and together with any sub-plans thereunder, the “Plans”), which are designed primarily to provide stock-based incentives to individual service providers of the Company.

Our board of directors generally has the discretion to determine the appropriate adjustments to the Plans and outstanding awards and purchase rights under the Plans in the event of a reverse stock split. Accordingly, if the Reverse Stock Split is approved and effected, consistent with the terms of the Plans and outstanding award agreements, the total number of shares of Common Stock issuable upon exercise, vesting or settlement of such awards and the total number of shares of Common Stock remaining available for future awards under the Plans, as well as any share-based limits in the Plans, would be proportionately reduced based on the Reverse Stock Split ratio selected by our board of directors, and any fractional shares that may result therefrom shall be rounded down to the nearest whole share. Furthermore, the exercise or purchase price of any outstanding options or purchase rights would be proportionately increased based on the Reverse Stock Split ratio selected by our board of directors, and any fractional cents that may result therefrom shall be rounded up to the nearest whole cent. In addition, the numbers of shares subject to awards to be granted in the future under the 2019 Plan pursuant to our non-employee director compensation program will be proportionately reduced based on the Reverse Stock Split ratio selected by our board of

directors. Our board of directors has authorized the Company to effect any changes necessary, desirable or appropriate to give effect to the Reverse Stock Split under the Plans, including any applicable technical, conforming changes thereunder.

Illustration

For purposes of illustration, the following table contains approximate information relating to our Common Stock if the Reverse Stock Split is effected at a ratio of: 1-for-2, 1-for-5, 1-for-10, 1-for-20, or 1-for-25, based on share information as of the close of business on March 31, 2023, but does not give effect to any other changes, including any issuance of securities after June 30, 2023:

	Pre-Reverse Split	1-for-2	1-for-5	1-for-10	1-for-20	1-for-25
Authorized	150,000,000	150,000,000	150,000,000	150,000,000	150,000,000	150,000,000
Issued	74,102,008	37,051,004	14,820,401	7,410,200	3,705,100	2,964,080
Outstanding	73,683,027	36,841,513	14,736,605	7,368,302	3,684,151	2,947,321
Reserved for future issuance pursuant to equity incentive and employee benefit plans	5,700,933	2,850,466	1,140,186	570,093	285,046	228,037
Number of shares issuable upon exercise of outstanding options	6,099,724	3,049,862	1,219,944	609,972	304,986	243,988
Number of shares issuable upon release of outstanding restricted stock units	47,426	23,713	9,485	4,742	2,371	1,897
Authorized but unissued and unreserved	64,468,890	107,234,445	132,893,780	141,446,890	145,723,446	146,578,757

Procedure for Effecting the Reverse Stock Split and Exchange of Stock Certificates, if Applicable

If the proposed Reverse Stock Split Amendments are approved by the Company's stockholders and our board of directors determines to effect the Reverse Stock Split, the Reverse Stock Split will become effective at 5:00 p.m., Eastern time, on the date the Certificate of Amendment is filed with the Secretary of State of the State of Delaware (the "Effective Time"). At the Effective Time, shares of our Common Stock issued and outstanding immediately prior thereto will be combined, automatically and without any action on the part of the stockholders, into new shares of Common Stock, in accordance with the Reverse Stock Split ratio contained in the Certificate of Amendment.

Registered "Book-Entry" Holders of Common Stock

As soon as practicable after the Effective Time, stockholders will be notified by our transfer agent that the Reverse Stock Split has been effected. As all of the outstanding shares of our Common Stock are held in book-entry form, you will not need to take any action to receive post-reverse stock split shares of our Common Stock. As soon as practicable after the Effective Time, the Company's transfer agent will send to your registered address a transmittal letter along with a statement of ownership indicating the number of post-reverse stock split shares of Common Stock you hold. If applicable, a check representing a cash payment in lieu of fractional shares will also be mailed to your registered address as soon as practicable after the Effective Time (see "— Fractional Shares" below).

Beneficial Holders of Common Stock

Upon the implementation of the Reverse Stock Split, we intend to treat shares of Common Stock held by stockholders in "street name" (i.e., through a bank, broker, custodian, or other nominee), in the same manner as registered "book-entry" holders of Common Stock. Banks, brokers, custodians or other nominees will be instructed to effect the Reverse Stock Split for their beneficial holders holding our Common Stock in street name. However, these banks, brokers, custodians or other nominees may have different procedures than registered stockholders for processing the Reverse Stock Split and making payment for fractional shares.

If a stockholder holds shares of our Common Stock with a bank, broker, custodian, or other nominee and has any questions in this regard, stockholders are encouraged to contact their bank, broker, custodian, or other nominee.

Holders of Certificated Shares of Common Stock

Our transfer agent will act as exchange agent for purposes of implementing the exchange of stock certificates, if applicable. If you are a stockholder holding pre-reverse stock split shares in certificate form, you will receive a transmittal letter from the Company's transfer agent as soon as practicable after the Effective Time. The transmittal letter will be accompanied by instructions specifying how you can exchange your certificate or certificates representing the pre-reverse stock split shares of our Common Stock for a statement of ownership. When you submit your certificate or certificates representing the pre-reverse stock split shares of our Common Stock, your post-reverse stock split shares of our Common Stock will be held electronically in book-entry form in the Direct Registration System. This means that, instead of receiving a new stock certificate representing the aggregate number of post-reverse stock split shares you own, you will receive a statement indicating the number of post-reverse stock split shares you own in book-entry form. We will no longer issue physical stock certificates unless you make a specific request for a certificate representing your post-reverse stock split ownership interest.

Fractional Shares

No scrip or fractional shares would be issued if, as a result of the Reverse Stock Split, a stockholder would otherwise become entitled to a fractional share because the number of shares of Common Stock they hold before the Reverse Stock Split is not evenly divisible by the split ratio ultimately determined by the board of directors. Instead, each stockholder will be entitled to receive a cash payment in lieu of such fractional share. The cash payment to be paid will be equal to the fraction of a share to which such holder would otherwise be entitled multiplied by the closing price per share of Common Stock on the date of the Effective Time as reported by Nasdaq (as adjusted to give effect to the Reverse Stock Split). No transaction costs would be assessed to stockholders for the cash payment. Stockholders would not be entitled to receive interest for their fractional shares for the period of time between the Effective Time and the date payment is issued or received.

After the Reverse Stock Split, then-current stockholders would have no further interest in our Company with respect to their fractional shares. A person entitled to a fractional share would not have any voting, dividend or other rights in respect of their fractional share except to receive the cash payment as described above. Such cash payments would reduce the number of post-reverse stock split stockholders to the extent that there are stockholders holding fewer than that number of pre-reverse stock split shares within the reverse stock split ratio that is determined by the board of directors as described above. Reducing the number of post-reverse stock split stockholders, however, is not the purpose of this proposal.

Stockholders should be aware that, under the escheat laws of the various jurisdictions where stockholders reside, where we are domiciled and where the funds for fractional shares would be deposited, sums due to stockholders in payment for fractional shares that are not timely claimed after the Effective Time may be required to be paid to the designated agent for each such jurisdiction. Thereafter, stockholders otherwise entitled to receive such funds may have to seek to obtain them directly from the state to which they were paid.

No Appraisal Rights

Under the Delaware General Corporation Law, the Company's stockholders will not be entitled to appraisal rights with respect to the Reverse Stock Split, and we do not intend to independently provide stockholders with any such right.

No Going Private Transaction

Notwithstanding the decrease in the number of outstanding shares following the Reverse Stock Split, the board of directors does not intend for this transaction to be the first step in a series of plans or proposals of a "going private transaction" within the meaning of Rule 13e-3 of the Exchange Act.

Interests of Certain Persons in the Proposal

Certain of our officers and directors have an interest in this proposal as a result of their ownership of shares of our Common Stock, as set forth below in the section entitled “Security Ownership of Certain Beneficial Owners and Management.” However, we do not believe that our officers or directors have interests in this proposal that are different from or greater than those of any of our other stockholders.

Anti-takeover Effects of Proposed Amendment

Release No. 34-15230 of the staff of the SEC requires disclosure and discussion of the effects of any action, including the proposed Reverse Stock Split Amendments discussed herein, that may be used as an anti-takeover mechanism. An additional effect of the Reverse Stock Split would be to increase the relative amount of authorized but unissued shares of Common Stock, which may, under certain circumstances, be construed as having an anti-takeover effect. Although not designed or intended for such purposes, the effect of the increased available shares might be to make more difficult or to discourage an attempt to take over or otherwise acquire control of the Company (for example, by permitting issuances that would dilute the stock ownership of a person or entity seeking to effect a change in the composition of the board of directors or contemplating a tender offer or other change in control transaction). In addition, our Certificate of Incorporation and our Bylaws include provisions that may have an anti-takeover effect. These provisions, among things, permit the board of directors to issue Preferred Stock with rights senior to those of the Common Stock without any further vote or action by the stockholders and do not provide for cumulative voting rights, which could make it more difficult for stockholders to effect certain corporate actions and may delay or discourage a change in control.

Our board of directors is not presently aware of any attempt, or contemplated attempt, to acquire control of the Company, and the Reverse Stock Split Proposal is not part of any plan by our board of directors to recommend or implement a series of anti-takeover measures.

Accounting Treatment of the Reverse Stock Split

If the Reverse Stock Split is effected, the par value per share of our Common Stock will remain unchanged at \$0.001. Accordingly, at the Effective Time, the stated capital on the Company’s consolidated balance sheets attributable to our Common Stock will be reduced in proportion to the size of the Reverse Stock Split ratio, and the additional paid-in-capital account will be increased by the amount by which the stated capital is reduced. Our stockholders’ equity, in the aggregate, will remain unchanged. Per share net income or loss will be increased because there will be fewer shares of Common Stock outstanding. Any Common Stock held in treasury will be reduced in proportion to the Reverse Stock Split Ratio. The Company does not anticipate that any other accounting consequences, including changes to the amount of stock-based compensation expense to be recognized in any period, will arise as a result of the Reverse Stock Split.

Certain U.S. Federal Income Tax Consequences of the Reverse Stock Split

The following discussion is a summary of certain U.S. federal income tax consequences of the Reverse Stock Split that may be relevant to U.S. Holders (as defined below) of our Common Stock, but does not purport to be a complete analysis of all potential tax effects. The effects of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local, or non-U.S. tax laws are not discussed. This discussion is based on the Internal Revenue Code of 1986, as amended (the “Code”), Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service (the “IRS”), in each case in effect as of the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a U.S. Holder. We have not sought and will not seek an opinion of counsel or any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the Reverse Stock Split.

This discussion is limited to U.S. Holders that hold our common stock as a “capital asset” within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not

address all U.S. federal income tax consequences relevant to a U.S. Holder's particular circumstances, including the impact of the Medicare contribution tax on net investment income and the alternative minimum tax. In addition, it does not address consequences relevant to U.S. Holders subject to special rules, including, without limitation:

- persons that are not U.S. Holders (as defined below);
- persons subject to the alternative minimum tax;
- U.S. Holders (as defined below) whose functional currency is not the U.S. dollar;
- persons holding our common stock as part of a hedge, straddle or other risk reduction strategy or as part of a conversion transaction or other integrated investment;
- banks, insurance companies, and other financial institutions;
- real estate investment trusts or regulated investment companies;
- brokers, dealers, or traders in securities;
- S corporations, partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);
- tax-exempt organizations or governmental organizations;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- tax-qualified retirement plans; and
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds.

If an entity treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership, and certain determinations made at the partner level. Accordingly, partnerships holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. HOLDERS OF OUR COMMON STOCK SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES OF THE REVERSE STOCK SPLIT ARISING UNDER OTHER U.S. FEDERAL TAX LAWS (INCLUDING ESTATE AND GIFT TAX LAWS), UNDER THE LAWS OF ANY STATE, LOCAL, OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

For purposes of the discussion below, a "U.S. Holder" is any beneficial owner of shares of our Common Stock that is not a partnership and, for U.S. federal income tax purposes, is or is treated as:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof, or the District of Columbia;
- an estate the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and all substantial decisions of which are subject to the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

The Reverse Stock Split should constitute a "recapitalization" for U.S. federal income tax purposes. As a result, a U.S. Holder generally should not recognize gain or loss upon the Reverse Stock Split, except as

described below with respect to cash received in lieu of fractional shares. A U.S. Holder's aggregate tax basis in the shares of the Common Stock received pursuant to the Reverse Stock Split should equal such holder's aggregate tax basis in the shares of the Common Stock surrendered (excluding any portion of such basis that is allocated to any fractional share of our Common Stock), and such holder's holding period in the shares of the Common Stock received should include the holding period of the shares of the Common Stock surrendered. Treasury Regulations promulgated under the Code provide detailed rules for allocating the tax basis and holding period of the shares of Common Stock surrendered to the shares of Common Stock received pursuant to the Reverse Stock Split. U.S. Holders holding shares of Common Stock that were acquired on different dates and at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

A U.S. Holder who receives cash in lieu of a fractional share of Common Stock should be treated as first receiving such fractional share and then receiving cash in redemption of such fractional share. A U.S. Holder who receives cash in lieu of a fractional share in the Reverse Stock Split should recognize capital gain or loss in an amount equal to the difference between the amount of the cash received and the portion of such holder's adjusted tax basis in the shares of Common Stock surrendered that is allocated to the fractional share. Such capital gain or loss should be long-term capital gain or loss if the U.S. Holder's holding period for the Common Stock surrendered exceeded one year at the effective time of the Reverse Stock Split. U.S. Holders should consult their tax advisors regarding the tax effects to them of receiving cash in lieu of fractional shares based on their particular circumstances.

U.S. Holders (other than corporations and certain other exempt recipients) may be subject to information reporting with respect to any cash received in exchange for a fractional share interest in a new share in the Reverse Stock Split. U.S. Holders who are subject to information reporting and who do not provide a correct taxpayer identification number and other required information (such as by submitting a properly completed IRS Form W-9) may also be subject to backup withholding at the applicable rate. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be refunded or credited against the U.S. Holder's U.S. federal income tax liability, if any, provided that the required information is properly furnished in a timely manner to the IRS. U.S. Holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

Vote Required and Board of Directors' Recommendation

The approval of Proposal No. 3 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 unanimously recommends a vote **FOR** the approval of the Reverse Stock Split Proposal.

**PROPOSAL No. 4 — APPROVAL OF AN ADJOURNMENT OF THE ANNUAL MEETING, IF
NECESSARY, TO SOLICIT ADDITIONAL PROXIES IF THERE ARE NOT SUFFICIENT VOTES AT
THE TIME OF THE ANNUAL MEETING TO APPROVE PROPOSAL No. 3**

Background of and Rationale for the Adjournment Proposal

The board of directors believes that if the number of shares of the Company's Common Stock outstanding and entitled to vote at the Annual Meeting is insufficient to approve the Reverse Stock Split, it is in the best interests of the stockholders to enable the board of directors to continue to seek to obtain a sufficient number of additional votes to approve the Reverse Stock Split Proposal.

In the adjournment proposal (the "Adjournment Proposal"), we are asking stockholders to authorize the holder of any proxy solicited by the board of directors to vote in favor of adjourning the Annual Meeting or any adjournment or postponement thereof. If our stockholders approve this proposal, we could adjourn the Annual Meeting, and any adjourned session of the Annual Meeting, to use the additional time to solicit additional proxies in favor of the Reverse Stock Split Proposal.

Additionally, approval of the Adjournment Proposal could mean that, in the event we receive proxies indicating that a majority of the outstanding shares of our Common Stock entitled to vote on the Reverse Stock Split Proposal, have voted against the Reverse Stock Split Proposal, we could adjourn the Annual Meeting without a vote on the Reverse Stock Split Proposal and use the additional time to solicit the holders of those shares to change their vote in favor of the Reverse Stock Split Proposal.

Vote Required and Board of Directors' Recommendation

The affirmative vote of a majority of the votes cast FOR this proposal is required to approve the adjournment of the Annual Meeting. Abstentions will have no effect on the results of this vote. If your shares are held in "street name" by a broker, bank or other nominee, your broker, bank or other nominee has authority to vote your unvoted shares held by that firm on this proposal. If your broker, bank or other nominee does not exercise this authority, such broker non-votes will have no effect on the results of this vote. The board of directors unanimously recommends a vote **FOR** the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal No. 3.

INFORMATION REGARDING THE BOARD OF DIRECTORS AND 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 his or her respective field, with superior credentials and recognition.
- Nominees should be well regarded in the community and shall have a long-term reputation for the high ethical and moral standards.
- Nominees should have sufficient time and availability to devote to the affairs of the company, particularly considering 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.
- Axcella is committed to fair treatment and equality of opportunity, building a culture of diversity and inclusion, and proactively addressing inequality in all aspects of its business, including the selection of directors for its board.

In addition, every nominee must have sufficient time and availability to devote to Axcella's affairs, a reputation for high ethical and moral standards, an understanding of the fiduciary responsibilities assumed by public company directors, and a demonstrated commitment to our values of ownership, determination, collaboration, and learning.

In building our board of directors, we also believe that the following skills and experiences are among those that are helpful in ensuring that our directors collectively possess the skills and backgrounds necessary for us to execute on our strategic plans, have a diversity of expertise and experience relevant to Axcella's current and future business objectives and relative to other directors, and enable the board of directors's oversight responsibilities on behalf of our shareholders. Skills and experiences shown below are generally reflective of the individual having worked in the area, rather than experience obtained as a director in the relevant field.

Director	R. Rosiello	P. Sekhri	M. Rosenblatt	W. Baird ⁽¹⁾	S. Nissen	W. Hinshaw ⁽²⁾	M. Hendrix	G. Pisano	C. Rondinone	C. Sohn
Class	III	II	I	II	I	I	III	III	II	II
Committees										
Audit				Chair			X	X		
Compensation		X		X						Chair
Nominating & Corporate Governance									X	Chair
Skills & Experience										
Business Development	X	X		X	X	X	X		X	X
CEO Experience		X			X	X				
Commercialization	X	X				X	X			X
Digital	X	X								
Drug Development	X	X	X		X	X	X		X	
Finance/ Accounting	X	X		X	X	X	X	X		
Government/ Regulatory	X					X				X
Healthcare Industry	X	X	X	X	X	X	X		X	X
Human Relations	X	X			X	X			X	X
International	X	X	X			X	X		X	X
Investor Relations	X	X		X	X	X				X
Manufacturing		X								
Science/ Technology			X		X	X	X		X	X
Strategy	X	X		X	X	X	X	X	X	X
Treating Physician			X							

Notes

(1) Financial expert

(2) Non-independent Director

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 Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 01460, Attention: Corporate Secretary. Assuming that biographical and background material has been provided on a timely basis in accordance with our bylaws, any recommendations received from stockholders will be evaluated in the same manner as potential nominees proposed by the nominating and corporate governance committee. If our board of directors determines to nominate a stockholder-recommended candidate and recommends his or her election, then his or her name will be included on our proxy card for the next annual meeting of stockholders. See "Stockholder Proposals" for a discussion of submitting stockholder proposals.

Diversity in Board Membership

As noted above, our nominating and corporate governance committee is committed to fair treatment and equality of opportunity, building a culture of diversity and inclusion, and proactively addressing inequality in the selection of directors for our board. Thus, the backgrounds and qualifications of our directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow our board to promote our strategic objectives and fulfill its responsibilities to our stockholders, and considers diversity of gender, race, national origin, education, professional experience, and differences in viewpoints and skills when evaluating proposed director candidates. We comply Nasdaq Rule 5605 by having 3 diverse directors (33%), including one from an underrepresented minority and/or LGBTQ+.

Board Diversity Matrix (As of August 1, 2023)

Total Number of Directors	10			
	Female	Male	Non-Binary	Did Not Disclose Gender
Part I: Gender Identity				
Directors	2	7		1
Part II: Demographic Background				
African American or Black				
Alaskan Native or Native American				
Asian				
Hispanic or Latinx	1			
Native Hawaiian or Pacific Islander				
White	1	6		
Two or More Races or Ethnicities		1		
LGBTQ+		1		
Did Not Disclose Demographic Background				1

Director Independence

Applicable Nasdaq Stock Market LLC, or Nasdaq, rules require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, the Nasdaq rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent and that audit committee members also satisfy independence criteria set forth in Rule 10A-3 under the Exchange Act and that compensation committee members satisfy independence criteria set forth in Rule 10C-1 under the Exchange Act. Under applicable Nasdaq rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries. In addition, in affirmatively determining the independence of any director who will serve on a company's compensation committee, Rule 10C-1 under the Exchange Act requires that a company's board of directors must consider all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including: the source of compensation to the director, including any consulting, advisory or other compensatory fee paid by such company to the director, and whether the director is affiliated with the company or any of its subsidiaries or affiliates.

Our board of directors has determined that all members of the board of directors, except Mr. Hinshaw, are independent directors, including for purposes of the rules of Nasdaq and the SEC. In making such

independence determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director. In considering the independence of the directors listed above, our board of directors considered the association of our directors with the holders of more than 5% of our common stock. There are no family relationships among any of our directors or executive officers. Mr. Hinshaw is not an independent director under these rules because he is an executive officer of Axcella.

Board Committees

Our board of directors has established an audit committee, a compensation committee, and a nominating and corporate governance committee. Each of the audit committee, compensation committee, and nominating and corporate governance committee operates under a charter that satisfies the applicable standards of the SEC and Nasdaq. Each such committee reviews its respective charter at least annually.

A current copy of the charter for each of the audit committee, compensation committee, and nominating and corporate governance committee is posted on the corporate governance section of our website, <https://ir.axcellatx.com/corporate-governance/documents-and-charters>.

Audit Committee

William D. “Chip” Baird, Martin Hendrix and Gary P. Pisano, Ph.D., serve on the audit committee, which is chaired by Mr. Baird. Our board of directors has determined that each member of the audit committee is “independent” for audit committee purposes as that term is defined in the rules of the SEC and the applicable Nasdaq rules, and each has sufficient knowledge in financial and auditing matters to serve on the audit committee. Our board of directors has designated Mr. Baird as an “audit committee financial expert,” as defined under the applicable rules of the SEC. During the fiscal year ended December 31, 2022, the audit committee met four times. The report of the audit committee is included in this proxy statement under “Report of the Audit Committee.” The audit committee’s responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee’s review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions;
- reviewing quarterly earnings releases;

- reviewing and overseeing our Environmental, Social, and Governance (“ESG”) commitments with respect to risk assessment and management policies and activities, including financial controls, whistleblower policies, and compliance; and
- reviewing and overseeing our information security and technology risks, including cybersecurity and data protection programs and policies to manage those risks.

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.

Oversight of Cybersecurity Matters. Our audit committee is responsible for the general oversight of our information security and technology risks, including our cybersecurity and data protection policies and programs. As part of our cybersecurity risk mitigation, we provide employees with annual cybersecurity training and we engage third parties to review our security controls and enhance our information and security team, including providing ongoing response and monitoring. We also have entered into a cybersecurity insurance policy. We have not experienced any material information security breaches within the last three years.

Compensation Committee

Paul Sekhri, William D. “Chip” Baird, and Catherine Angell Sohn, Pharm.D., serve on the compensation committee, which is chaired by Mr. Sekhri. Our board of directors has determined that each member of the compensation committee including Mr. Sekhri and Dr. Sohn “independent” as defined in the applicable Nasdaq rules. During the fiscal year ended December 31, 2022, the compensation committee met ten times. The compensation committee’s responsibilities include:

- annually reviewing and recommending to the board of directors the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and based on such evaluation: (i) recommending to the board of directors the cash compensation of our Chief Executive Officer and (ii) recommending grants and awards to our Chief Executive Officer under equity-based plans;
- reviewing and approving the cash compensation of our other executive officers;
- reviewing and discussing with the board of directors corporate succession plans for the Chief Executive Officer and all executive officers as defined by Rule 3b-7;
- reviewing and establishing our overall management compensation, philosophy and policy;
- reviewing and overseeing our ESG commitments with respect to human capital and social responsibility, including diversity, equality, and inclusion (DEI), employment policies, and employee health and safety;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing the compensation committee report required by SEC rules, if and when required, to be included in our annual proxy statement; and
- reviewing and approving the retention, termination or compensation of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Nominating and Corporate Governance Committee

Catherine Angell Sohn, Pharm.D., and Cristina Rondinone, Ph.D., serve on the nominating and corporate governance committee, which is chaired by Dr. Sohn. Our board of directors has determined that

both of the members of the nominating and corporate governance committee are “independent” as defined in the applicable Nasdaq rules. During the fiscal year ended December 31, 2022, the nominating and corporate governance committee met six times. The nominating and corporate governance committee’s responsibilities include:

- developing and recommending to the board of directors’ criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the size and composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board’s committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines;
- overseeing the evaluation of our board of directors and management; and
- reviewing and overseeing our ESG commitments directly, including working with the Audit Committee and Compensation Committee on their ESG responsibilities and commitments.

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 considering 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 may consider a broad range of factors relating to the qualifications and background 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 further the interests of our stockholders through their established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape, and professional and personal experiences and expertise relevant to our growth strategy. We have no formal policy regarding board diversity.

Oversight of Environmental, Social and Governance (ESG) Matters. Our nominating and corporate governance committee has primary responsibility for the general oversight of our ESG commitments, initiatives, and programs, including collaborating with the audit committee and compensation committee with their ESG responsibilities. In 2021, the board approved amendment of the nominating and corporate governance committee charter to specifically include undertaking primary responsibility for ESG oversight; amendment of the audit committee charter to include responsibility for ESG matters related to risk assessment and management policies and activities, including financial controls, whistleblower policies, and compliance, and the compensation committee amended its charter to include responsibility for ESG matters related to human capital and social responsibility, including diversity, equality, and inclusion (DEI), employment policies, and employee health and safety. These amendments reflect our commitment to ESG matters.

Board and Committee Meetings Attendance

The full board of directors met thirteen times during 2022. During 2022, 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. All members of the board of directors then in office attended the annual meeting of stockholders on May 19, 2022. Paul Sekhri and Michael Rosenblatt, M.D. joined the board of directors subsequent to last year's annual meeting of stockholders.

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 Axcella securities. Our insider trading policy expressly prohibits short sales, purchases or sales of puts or calls, and other derivative transactions of our stock, including any transaction that provides the economic equivalent of ownership, by our executive officers, directors, employees and certain designated consultants and contractors. Our insider trading policy also prohibits using our securities as collateral in a margin account and pledging our securities as collateral for a loan (or modifying an existing pledge).

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.axcellatx.com/corporate-governance/documents-and-charters>. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K.

Board of Directors Leadership Structure and Board of Directors' Role in Risk Oversight

Robert Rosiello is the current Chairman of our board of directors and William R. Hinshaw, Jr. is our current Chief Executive Officer, hence the roles of Chairman of our board of directors and Chief Executive Officer are separated. We believe that separating these positions allows our Chief Executive Officer to focus on our day-to-day business, while allowing our 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 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 and commercialization activities, operations, strategic direction, and intellectual property. Management is responsible for the day-to-day management of risks we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, our board of directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed.

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 chairman of the relevant committee reports on the discussion to the full board of directors during the committee reports portion of the next board meeting. This enables the board of directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

Communication with the Directors of Axcella

Any interested party with concerns about our company may report such concerns to the board of directors or the chairman of our board of directors and nominating and corporate governance committee, by submitting a written communication to the attention of such director at the following address:

c/o Axcella Therapeutics
P.O. Box 1270
Littleton, Massachusetts 01460 United States

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

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

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

The audit committee oversees the procedures for the receipt, retention, and treatment of complaints received by Axcella 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.

DIRECTOR COMPENSATION

The table below shows all compensation paid to each individual who served as non-employee member of our board of directors during 2022 for their services as directors in 2022, other than Mr. Hinshaw. Amounts paid to Mr. Hinshaw are presented below in the Summary Compensation Table.

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$) ⁽¹⁾	Option Awards (\$) ⁽¹⁾⁽³⁾	Non-Equity Incentive Plan Compensation (\$)	Nonqualified Deferred Compensation Earnings (\$)	All Other Compensation (\$)	Total (\$)
Martin Hendrix, Ph.D	41,236		52,628				93,864
Catherine Angell Sohn, Pharm.D.	57,165		25,952				83,117
William D. “Chip” Baird	67,500		25,952				93,452
Gary P. Pisano, Ph.D.	47,500		25,952				73,452
Cristina M. Rondinone, Ph.D.	44,000		25,952				69,952
Paul Sekhri	33,832		52,628				86,460
Michael Rosenblatt	34,725		52,628			10,000 ⁽²⁾	97,353
Robert Rosiello	15,750 ⁽⁴⁾		29,680				45,430
Torben Straight Nissen	9,000 ⁽⁴⁾		29,680				38,680

- (1) The amounts reported represent the aggregate grant date fair value of the stock options awarded to the non-employee directors in the fiscal year ended December 31, 2022, calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the stock options reported in this column are set forth in Note 9 to our audited Consolidated Financial Statements included in our Annual Report. The amounts reported in this column reflect the accounting cost for these stock options and stock awarded and do not correspond to the actual economic value actually received by the non-employee directors or that may be received by the non-employee directors upon the exercise of the stock options or any sale of the underlying shares of common stock.
- (2) The amount reported represents \$10,000 in cash payments made to Mr. Rosenblatt in consideration for services on the Scientific Advisory Board.
- (3) As of December 31, 2022, each non-employee director held unexercised options to purchase the number of shares of the Company’s common stock as set forth below:

Name	Option Awards ⁽¹⁾	
	Exercisable (#)	Unexercisable (#)
Martin Hendrix, Ph.D	6,667	33,333
Catherine Angell Sohn, Pharm.D.	53,000	20,000
William D. “Chip” Baird	93,031	20,000
Gary P. Pisano, Ph.D.	42,000	20,000
Cristina M. Rondinone, Ph.D.	88,144	20,000
Paul Sekhri	6,667	33,333
Michael Rosenblatt	19,898	33,333
Robert Rosiello	—	40,000
Torben Straight Nissen	—	40,000

- (1) The amounts reported represent the aggregate number of unexercised options to purchase shares of the Company’s common stock held by each non-employee director, including awards granted prior to the completion of the Company’s IPO in May of 2019.

- (4) The annual retainers earned by Mr. Rosiello and Dr. Straight Nissen were prorated based on the date they joined the board of directors.

Non-Employee Director Compensation

Under our director compensation program, we pay our non-employee directors a cash retainer for service on the board of directors and for service on each committee on which the director is a member. The chairman 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 annual retainer paid to the chairman of the board is \$70,000. The fees paid to non-employee directors, 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:

	Annual Retainer
Board of Directors:	
All non-employee members, except chairman	\$40,000
Audit Committee:	
Members	\$ 7,500
Chairman	\$15,000
Compensation Committee:	
Members	\$ 5,000
Chairman	\$10,000
Nominating and Corporate Governance Committee:	
Members	\$ 4,000
Chairman	\$ 8,000

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 will be granted an initial, one-time equity award of an option to purchase 40,000 shares of our common stock, which shall vest in equal quarterly installments during the 12 quarters following the grant date, subject to continued service as a director through such vesting date. On the date of each annual meeting of stockholders of Axcella, each non-employee director will receive an annual equity award of an option to purchase 20,000 shares of common stock, which shall vest on the earlier of the one-year anniversary of the grant date and Axcella's next annual meeting of stockholders, subject to continued service as a director through such vesting date.

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.

The Directors have agreed to suspend their cash remuneration for service on the board of directors until the Company has clarity on its financial condition.

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information as of December 31, 2022, regarding shares of common stock that may be issued under our equity compensation plans.

Plan Category	Equity Compensation Plan Information		
	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 plan (excluding securities in first column)
Equity compensation plans approved by security holders ⁽¹⁾	6,612,210 ⁽²⁾	\$5.05	3,015,476 ⁽³⁾⁽⁴⁾
Equity compensation plans not approved by security holders	—	—	—
Total	6,612,210	\$5.05	3,015,476

- (1) Includes the Axcella Health Inc. Amended and Restated 2010 Stock Incentive Plan (the “2010 Plan”), the 2019 Plan and the Axcella Health Inc. 2019 Employee Stock Purchase Plan (the “2019 Employee Stock Purchase Plan”).
- (2) Includes 6,536,977 of common stock issuable upon the exercise of outstanding stock options and 75,233 shares of common stock issuable upon settlement of restricted stock units.
- (3) As of December 31, 2022, there were 2,317,471 shares available for grant under the 2019 Plan and 698,005 shares available for grant under the 2019 Employee Stock Purchase Plan. As of the closing of our initial public offering, no additional equity awards may be granted under the 2010 Plan. The shares of common stock underlying any awards granted under the 2010 Plan or 2019 Plan that are forfeited, canceled, reacquired by us prior to vesting, satisfied without the issuance of stock, or otherwise terminated (other than by exercise) and the shares of common stock that are withheld upon exercise of a stock option or settlement of such award to cover the exercise price or tax withholding will be added to the shares of common stock available for issuance under the 2019 Plan.
- (4) The 2019 Plan provides that an additional number of shares will automatically be added to the shares authorized for issuance under the 2019 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. The 2019 Employee Stock Purchase Plan provides that an additional number of shares will automatically be added to the shares authorized for issuance under the 2019 Employee Stock Purchase Plan on January 1 of each year through January 1, 2029. 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) 237,181 shares or (iii) such amount as determined by the compensation committee of our board of directors.

EXECUTIVE COMPENSATION

Our named executive officers (“NEOs”), for the year ended December 31, 2022 who appear in the Summary Compensation table are:

- William R. Hinshaw, Jr., our chief executive officer;
- Paul Fehlner, J.D., Ph.D, our chief legal officer;
- Margaret James Koziel, M.D., our former chief medical officer; and
- Robert Crane, our former chief financial officer.

Summary Compensation Table

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

Name and Principal Position	Year	Salary (\$)	Stock Awards (\$)	Option Awards (\$) ⁽¹⁾	Non-Equity Incentive Plan Compensation (\$) ⁽²⁾	All Other Compensation (\$)	Total (\$)
William R. Hinshaw, Jr. <i>President and CEO</i>	2022	571,875		435,679	291,741	8,061 ⁽⁴⁾	1,307,356
	2021	546,250		1,913,241 ⁽³⁾	275,275	8,700 ⁽⁴⁾	2,743,466
Paul Fehlner, J.D., Ph.D <i>Chief Legal Officer</i>	2022	398,491		86,215	150,769	8,700 ⁽⁴⁾	644,175
Margaret James Koziel, M.D. ⁽⁵⁾ <i>Former Senior Vice President and Chief Medical Officer</i>	2022	415,000		41,133	157,389	7,380 ⁽⁴⁾	620,902
Robert Crane ⁽⁶⁾ <i>Former Senior Vice President and Chief Financial Officer</i>	2022	214,103		401,801	121,812	8,202 ⁽⁴⁾	745,918

- (1) The amounts reported represent the aggregate grant date fair value of stock options awarded to the named executive officers in 2022 and 2021, as applicable, calculated in accordance with FASB ASC Topic 718. Such grant date fair value does not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value are set forth in Note 9 to our audited consolidated financial statements in our Annual Report. These amounts do not correspond to the actual value that may be recognized by the named executive officers upon vesting or exercise of the applicable awards. The amount reported for Mr. Crane includes the grant date fair value of a performance-based option award assuming probable achievement. Assuming maximum achievement, the grant date fair value is \$801,551.
- (2) The amounts reported represent cash incentive compensation based on the board of directors’ assessment of the achievement of company and individual performance objectives for the years ended December 31, 2022, and December 31, 2021, respectively. The cash incentive compensation for 2022 performance was paid in two installments, with the first installment paid in August 2022 and based on achievement of objectives for the first half of 2022, and the second installment paid in February 2023 and based on achievement of objectives for the second half of 2022. The cash incentive compensation for 2021 performance was paid in February 2022. The amount reported for Mr. Crane includes a one-time cash bonus of \$75,000 paid in February 2022 and \$46,812 cash incentive compensation paid in August 2022.
- (3) In 2021, Mr. Hinshaw was granted a total of 375,000 time-based option awards.
- (4) The amounts reported represent matching contributions under the Company’s 401(k) plan.
- (5) On June 23, 2023, Margaret Koziel, M.D., resigned from the Company, effective immediately. The Company expects to engage Dr. Koziel to consult with and support the Company in connection with its previously announced program reprioritization and corporate restructuring.
- (6) Robert Crane’s employment terminated effective December 15, 2022. In connection with his termination,

Mr. Crane forfeited 325,000 of performance-based option awards granted to him in 2022. On December 16, 2022, Mr. Crane entered into a consulting agreement, and, in addition to receiving cash compensation consideration in January 2023 under the arrangement, the vesting period for his service-based option awards was extended to February 24, 2023. Mr. Crane will forfeit an aggregate 568,750 option awards.

Narrative to Summary Compensation Table

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

Our compensation committee discharges our board of directors' responsibilities relating to compensation of our directors and executives, oversees our company's overall compensation structure, policies and programs, and reviews our processes and procedures for the consideration and determination of director and executive compensation. Our compensation committee typically reviews and approves grants and awards under equity-based plans for all service providers, including our executive officers. In addition, our compensation committee reviews and recommends to the board of directors for determination the corporate goals and objectives that may be relevant to the compensation of our chief executive officer, and evaluates our chief executive officer's performance, and recommends to the board of directors for determination our chief executive officer's equity and non-equity compensation. Our board of directors discusses the compensation committee's recommendations and ultimately approves the compensation of our executive officers without members of management present.

Annual base salary

Each named executive officer's base salary is a fixed component of annual compensation for performing specific duties and functions and has been established by our board of directors taking into account each individual's role, responsibilities, skills, and experience. Base salaries for our named executive officers are reviewed annually by our compensation committee, typically in connection with our annual performance review process, and adjusted from time to time, based on the recommendation of the compensation committee, to realign salaries with market levels after considering individual responsibilities, performance, and experience.

Cash bonus

Our annual bonus program is intended to reward our named executive officers for meeting objective or subjective performance goals for a fiscal year. From time to time, our board of directors or compensation committee may approve annual bonuses for our named executive officers based on individual performance, company performance, or as otherwise determined appropriate.

Name	Target Bonus (% of base salary)
William R. Hinshaw, Jr.	55
Paul Fehlner, J.D., Ph.D	40
Margaret James Koziel, M.D.	40
Robert Crane	

Long-term equity incentives

Our equity grant program is intended to align the interests of our named executive officers with those of our stockholders and to motivate them to make important contributions to our performance. We granted

awards to our named executive officers in 2022, as described in the “Outstanding Equity Awards at 2022 Fiscal Year End Table.”

Outstanding Equity Awards at 2022 Fiscal Year End Table

The following table presents information regarding all outstanding equity awards held by each of our named executive officers on December 31, 2022.

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⁾
William R. Hinshaw <i>President and CEO</i>	939,028 ⁽²⁾	0 ⁽²⁾		6.21	6/21/2028		
	57,000 ⁽³⁾	3,800 ⁽³⁾		13.83	3/22/2029		
	117,525 ⁽⁴⁾	39,175 ⁽⁴⁾		4.12	1/2/2030		
	164,063 ⁽⁵⁾	210,937 ⁽⁵⁾		6.59	2/8/2031		
	0 ⁽⁶⁾	275,000 ⁽⁶⁾		1.63	2/7/2032		
	0 ⁽⁶⁾	100,000 ⁽⁶⁾		5.00	2/7/2032		
Paul Fehlner, J.D., Ph.D. <i>Chief Legal Officer</i>	97,828 ⁽⁷⁾	0 ⁽⁷⁾		6.21	4/24/2028	42,500 ⁽¹⁰⁾	13,919 ⁽¹⁰⁾
	13,500 ⁽⁸⁾	4,500 ⁽⁸⁾		3.40	12/18/2029		
	16,875 ⁽⁹⁾	13,125 ⁽⁹⁾		4.73	9/15/2030		
	37,188 ⁽⁵⁾	47,812 ⁽⁵⁾		6.59	2/8/2031		
	0 ⁽⁶⁾	70,000 ⁽⁶⁾		1.63	2/7/2032		
Margaret James Koziel, M.D. <i>Former Senior Vice President and Chief Medical Officer</i>	18,200 ⁽¹¹⁾	2,600 ⁽¹¹⁾		9.31	6/27/2029	13,125 ⁽¹⁶⁾	4,298 ⁽¹⁶⁾
	7,688 ⁽¹²⁾	2,562 ⁽¹²⁾		4.12	1/2/2030		
	5,500 ⁽¹³⁾	5,500 ⁽¹³⁾		5.04	11/10/2030		
	13,584 ⁽⁵⁾	17,466 ⁽⁵⁾		6.59	2/08/2031		
	3,750 ⁽¹⁴⁾	6,250 ⁽¹⁴⁾		4.11	6/25/2031		
	18,750 ⁽¹⁵⁾	56,250 ⁽¹⁵⁾		2.60	12/10/2031		
Robert Crane <i>Former Senior Vice President and Chief Financial Officer</i>	0 ⁽¹⁷⁾	200,000 ⁽¹⁷⁾		1.63	5/25/2023		
	0 ⁽¹⁷⁾	125,000 ⁽¹⁷⁾		1.63	5/25/2023		

(1) Based on \$0.33 per share, the last sale price of Axcella common stock on December 30, 2022.

(2) 25% of this option vested and became exercisable on May 31, 2019, and the remainder vested in 12 equal quarterly installments thereafter.

(3) This option was granted on March 22, 2019. Following the closing of our initial public offering on May 13, 2019, the vesting period for the stock option commenced subject to approval of performance criteria by the board of directors, which occurred on May 22, 2019. 25% of this option vested and became exercisable on March 1, 2020, and the remainder shall vest in 12 equal quarterly installments thereafter.

(4) 25% of this option vested and became exercisable on January 2, 2021, with the remainder to vest in 12 equal quarterly installments thereafter.

(5) 25% of this option vested and became exercisable on February 9, 2022, with the remainder vesting in 12 equal quarterly installments thereafter.

- (6) 25% of this option shall vest and become exercisable on February 8, 2023, with the remainder vesting in 12 equal quarterly installments thereafter.
- (7) 25% of this option vested and became exercisable on April 2, 2019, and the remainder vested in 12 equal quarterly installments thereafter.
- (8) 25% of this option vested and became exercisable on December 18, 2020, and the remainder shall vest in 12 equal quarterly installments thereafter.
- (9) 25% of this option vested and became exercisable on September 16, 2021, and the remainder shall vest in 12 equal quarterly installments thereafter.
- (10) 1/3 of the restricted stock units vested on February 9, 2023 and the remaining 2/3 of the grant shall vest on February 9, 2024.
- (11) 25% of the shares underlying this option vested and became exercisable on June 27, 2020, with the remainder vesting in 12 equal quarterly installments thereafter.
- (12) 25% of the shares underlying this option vested and became exercisable on January 2, 2021, with the remainder vesting in 12 equal quarterly installments thereafter.
- (13) 25% of the shares underlying this option vested and became exercisable on November 10, 2021, with the remainder vesting in 12 equal quarterly installments thereafter.
- (14) 25% of the shares underlying this option vested and became exercisable on June 25, 2022, with the remainder vesting in 12 equal quarterly installments thereafter.
- (15) 25% of this option vested and became exercisable on December 10, 2022, with the remainder vesting in 12 equal quarterly installments thereafter.
- (16) 25% of the restricted stock units vested on August 31, 2021, with the remainder vesting in 12 equal quarterly installments thereafter.
- (17) 25% of each option was scheduled to vest on February 8, 2023, with the remainder vesting in 12 equal quarterly installments thereafter. Mr. Crane was terminated effective December 15, 2022. His separation agreement provided for continued vesting during a consulting period, which ended on February 24, 2023. A total of 81,250 shares vested and became exercisable on February 8, 2023.

Employment arrangements with our named executive officers

William R. Hinshaw, Jr.

Under our Amended and Restated Employment Agreement with Mr. Hinshaw, dated December 20, 2018, or the Hinshaw Employment Agreement, he will continue to serve as our President and Chief Executive Officer on an at will basis. Mr. Hinshaw initially received a base salary of \$500,000 per year, which is subject to periodic review and adjustment. Mr. Hinshaw is also eligible for an annual performance bonus 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 Hinshaw Employment Agreement further provides that if Mr. Hinshaw's employment is terminated by us without Cause (as defined in the Hinshaw Employment Agreement) or Mr. Hinshaw resigns for Good Reason (as defined in the Hinshaw Employment Agreement), he will be entitled to receive: (i) base salary continuation for 12 months following termination, or the Hinshaw Severance Amount, and, (ii) if Mr. Hinshaw is enrolled in our health care program immediately prior to the date of termination and properly elects to receive Consolidated Omnibus Budget Reconciliation Act ("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 Hinshaw Severance Amount shall immediately cease if Mr. Hinshaw 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. Hinshaw'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 Hinshaw 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) if Mr. Hinshaw 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 (iii) notwithstanding anything to the contrary provided in the applicable award agreement, accelerated vesting of 100% of all time-based stock options and other stock-based awards subject to time-based vesting, or “Time-Based Equity Awards”, held by Mr. Hinshaw.

On February 14, 2023, the severance provisions of the Hinshaw Employment Agreement were amended as described below under the heading “— Retention Agreements.”

Margaret Koziel

Under our Employment Agreement with Dr. Koziel, dated December 1, 2021, or the Koziel Employment Agreement, Dr. Koziel was engaged to serve as our Senior Vice President and Chief Medical Officer on an at will basis. Dr. Koziel initially received a base salary of \$415,000 per year, which was subject to periodic review and adjustment. Dr. Koziel was also eligible for an annual performance bonus targeted at 40% of her base salary and was eligible to participate in the employee benefit plans generally available to our employees, subject to the terms of those plans.

The Koziel Employment Agreement further provides that if Dr. Koziel’s employment is terminated by us without Cause (as defined in the Koziel Employment Agreement) or Dr. Koziel resigns for Good Reason (as defined in the Koziel Employment Agreement), she will be entitled to receive: (i) base salary continuation for nine months following termination, or the Koziel Severance Amount, and, (ii) if Dr. Koziel 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 Koziel Severance Amount shall immediately cease if Dr. Koziel 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 Dr. Koziel’s 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 Koziel 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, (ii) if Dr. Koziel 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) notwithstanding anything to the contrary provided in the applicable award agreement, accelerated vesting of 100% of all Time-Based Equity Awards held by Dr. Koziel.

On February 14, 2023, the severance provisions of the Koziel Employment Agreement were amended as described below under the heading “— Retention Agreements” and on June 23, 2023, Dr. Koziel resigned as Senior Vice President and Chief Medical Officer, effective immediately.

Paul Fehlner

Under our Amended and Restated Employment Agreement with Dr. Fehlner, dated December 20, 2018 and amended September 16, 2020, or the Fehlner Employment Agreement, Dr. Fehlner serves as our Chief Legal Officer and Corporate Secretary on an at will basis. Dr. Fehlner initially received a base salary of \$370,000 per year, which is subject to periodic review and adjustment. Dr. Fehlner is also eligible for an annual performance bonus 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 Fehlner Employment Agreement further provides that if Dr. Fehlner's employment is terminated by us without Cause (as defined in the Fehlner Employment Agreement) or Dr. Fehlner resigns for Good Reason (as defined in the Fehlner Employment Agreement), he will be entitled to receive: (i) base salary continuation for nine months following termination, or the Fehlner Severance Amount, and, (ii) if Dr. Fehlner 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 Fehlner Severance Amount shall immediately cease if Mr. Fehlner 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. Fehlner'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 Fehlner 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, (ii) if Dr. Fehlner 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) notwithstanding anything to the contrary provided in the applicable award agreement, accelerated vesting of 100% of all time-based stock options and other stock-based awards subject to Time-Based Equity Awards held by Dr. Fehlner.

On February 14, 2023, the severance provisions of the Fehlner Employment Agreement were amended as described below under the heading "— Retention Agreements."

Robert Crane

Under our Employment Agreement with Mr. Crane, dated January 24, 2022, or the Crane Employment Agreement, he was engaged to serve as our Chief Financial Officer on an at will basis. Mr. Crane initially received a base salary of \$250,000 per year, which was subject to periodic review and adjustment. Mr. Crane was also eligible for an annual performance bonus 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.

Retention Agreements

On February 14, 2023, we entered into retention agreements, or the Retention Agreements, with each of (i) Mr. Hinshaw, (ii) Dr. Koziel, and (iii) Dr. Fehlner to provide an incentive for their continued service with us subsequent to the restructuring event on December 14, 2022.

The Retention Agreements provide for retention bonuses of cash and equity in the event of certain actions by us as further described below. In connection with the retention bonuses provided under the Retention Agreements, each of Mr. Hinshaw, Dr. Koziel and Dr. Fehlner agreed to waive their rights to severance payments provided under their respective employment agreements in the event of a Terminations Without Cause or for Good Reason (as such terms are currently defined in their respective employment agreements).

The Company will pay \$517,500 to Mr. Hinshaw in the event of (i) an affirmative decision by the board of directors that the Company will cease to do business, (ii) Mr. Hinshaw's Termination Without Cause or resignation for Good Reason (as such terms are currently defined in the Hinshaw Employment Agreement) or (iii) the board of directors approving a sale of the Company or a corporate transaction that allows the Company to continue its operations, with fifty percent of the total retention payment payable on June 30, 2023 and the remainder payable on September 30, 2023.

The Company will pay \$280,125 to Dr. Koziel in the event of (i) an affirmative decision by the board of directors that the Company will cease to do business, (ii) Dr. Koziel's Termination Without Cause or resignation for Good Reason (as such terms are currently defined in the Koziel Employment Agreement) and

(iii) the board of directors approving a sale of the Company or a corporate transaction that allows the Company to continue its operations, with fifty percent of the total retention payment payable on June 30, 2023 and the remainder payable on September 30, 2023. Dr. Koziel resigned from the Company on June 23, 2023 and upon her resignation, she forfeited her right to receive these payments.

The Company will pay \$270,123 to Dr. Fehlner in the event of (i) an affirmative decision by the board of directors that the Company will cease to do business, (ii) Dr. Fehlner's Termination Without Cause or resignation for Good Reason (as such terms are currently defined in the Fehlner Employment Agreement) and (iii) the board of directors approving a sale of the Company or a corporate transaction that allows the Company to continue its operations, with fifty percent of the total retention payment payable on June 30, 2023 and the remainder payable on September 30, 2023.

In addition, the Company may, subject to review by the board of directors, offer a further equity incentive grant to each of Mr. Hinshaw and Dr. Fehlner equal to 50% of such individual's 2023 target annual bonus to continue employment with the Company in the event of a transaction referenced in (iii) above of an appropriate scale and that allows the Company to continue its operations indefinitely. Such equity incentive would vest fifty percent (50%) on the date six (6) months after grant, with the remaining fifty percent (50%) vesting on the date twelve (12) months after grant, provided that such individual remains employed by the Company on each vesting day.

Other agreements

We have also entered into employee confidentiality, inventions, non-solicitation and non-competition agreements with each of our named executive officers. Under such agreements, each named executive officer has agreed (1) not to compete with us during his or her employment and for a period of one year after the termination of such employment, (2) not to solicit our employees during his or her employment and for a period of one year after the termination of such employment, (3) to protect our confidential and proprietary information and (4) to assign to us related intellectual property developed during the course of his or her employment.

Additional Narrative Disclosure

401(k) Savings Plan. We maintain a 401(k)-retirement savings plan for the benefit of our employees, including our named executive officers, who satisfy certain eligibility requirements. Under the 401(k) plan, eligible employees may elect to defer a portion of their compensation, within the limits prescribed by Internal Revenue Code of 1986, as amended, (the "Code") on a pre-tax or after tax (Roth) basis through contributions to the 401(k) plan. We are permitted to make discretionary profit-sharing contributions to the 401(k) plan. In 2020 the Company began matching 50% of every employee's first 6% of contributions and the contributions will be 100% vested after 1 year of employment. The 401(k) plan is intended to qualify under Section 401(a) of the Code. As a tax qualified retirement plan, pre-tax contributions to the 401(k) plan and earnings on those pre-tax contributions are not taxable to the employees until distributed from the 401(k) plan, and earnings on Roth contributions are not taxable when distributed from the 401(k) plan.

Health and Welfare Benefits. All of our full-time employees, including our named executive officers, are eligible to participate in our health and welfare plans, including medical and dental benefits, short-term and long-term disability insurance, and life insurance. We believe these perquisites are necessary and appropriate to provide a competitive compensation package to our named executive officers.

Compensation Risk Assessment

We believe that although a portion of the compensation provided to our executive officers and other employees is performance-based, our executive compensation program does not encourage excessive or unnecessary risk taking. Our compensation programs are designed to encourage our executive officers and other employees to remain focused on both short-term and long-term strategic goals, in particular in connection with our pay-for-performance compensation philosophy. In line with this philosophy, we do not provide guaranteed bonuses to the above NEOs, and the bonuses to the above NEOs are only awarded upon approval of the compensation committee (or in the case of our CEO, the board) based upon satisfactorily

meeting goals set by the board of directors. As a result, we do not believe that our compensation programs are reasonably likely to have a material adverse effect on us.

Rule 10b5-1 Sales Plans

Our policy governing transactions in our securities by directors, officers, and employees permits our officers, directors, 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. Accordingly, sales under these plans may occur at any time, including possibly before, simultaneously with, or immediately after significant events involving our company.

CERTAIN RELATIONSHIPS AND RELATED PARTY 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, 2022, 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 five percent or more of any class of our capital stock or any member of the immediate family of, or entities affiliated with, any of the foregoing persons, had, or will have, a direct or indirect material interest.

Agreements with our stockholders

Investors’ Rights Agreement

In connection with the initial closing of our Series E Preferred Stock financing on November 30, 2018, we entered into a fifth amended and restated investors’ rights agreement, or investors’ rights agreement, with certain of our stockholders, including affiliates of Flagship Pioneering Funds, or Flagship. The investors’ rights agreement, among other things, granted investors party thereto certain registration rights (the “Registration Rights”), including demand registration rights, short-form registration rights, and piggyback registration rights, with respect to shares of our common stock, including shares of common stock issued or issuable upon conversion of our convertible preferred stock.

The Registration Rights will terminate on the earlier to occur of May 13, 2024, or, as to each holder, such earlier time at which such holder (i) can sell all shares held by it in compliance with SEC Rule 144(b) (1)(i) or (ii) holds 1% or less of our common stock and all registrable securities held by such holder can be sold in any three-month period without registration in compliance with SEC Rule 144.

Agreement with Flagship Pioneering

In December 2008, we entered into a services agreement with Flagship Ventures Management, Inc., now known as Flagship Pioneering, Inc., an affiliate of the Flagship Pioneering Funds, under which Flagship Pioneering, Inc. provides us with advisory and administrative services on an as-needed basis. The agreement, which is invoiced monthly, may be terminated by either party upon 30 days’ prior written notice. Our transactions with Flagship Pioneering, Inc. were immaterial for the year ended December 31, 2022, for services provided under the services agreement.

Limitation of Liability and Indemnification of Officers and Directors

Our restated certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by the Delaware General Corporation Law, or DGCL. Consequently, our directors are not personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director’s duty of loyalty to us 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 DGCL; or
- any transaction from which the director derived an improper personal benefit.

Our amended and restated bylaws require us to indemnify our directors and officers to the maximum extent not prohibited by the DGCL and allow us to indemnify other employees and agents as set forth in the DGCL. Subject to certain limitations, our amended and restated bylaws also require us to advance expenses incurred by our directors and officers for the defense of any action for which indemnification is required or permitted.

We have entered, and intend to continue to enter, into separate indemnification agreements with our directors, officers and certain of our key employees, in addition to the indemnification provided for in our

restated certificate of incorporation and amended and restated bylaws. These agreements, among other things, require us to indemnify our directors, officers and key employees for certain expenses, including attorneys' fees, judgments, penalties, fines and settlement amounts actually incurred by these individuals in any action or proceeding arising out of their service to us or our subsidiaries or any other company or enterprise to which these individuals provide services at our request. Subject to certain limitations, our indemnification agreements also require us to advance expenses incurred by our directors, officers and key employees for the defense of any action for which indemnification is required or permitted.

Policies for Approval of Related Party Transactions

Our board of directors reviews and approves transactions with directors, officers and holders of five percent or more of our voting securities and their affiliates, each a related party. Prior to this offering, upon consideration of a potential related party transaction, the material facts as to the related party's relationship or interest in the transaction are disclosed to our board of directors prior to their consideration of such transaction, and the transaction is not considered approved by our board of directors unless a majority of the directors who are not interested in the transaction approve the transaction. Further, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction are disclosed to the stockholders, who must approve the transaction in good faith.

In connection with our initial public offering, we adopted a written related party transactions policy that provides that such transactions must be approved by our audit committee. This policy became effective on May 9, 2019. Pursuant to this policy, the audit committee has the primary responsibility for reviewing and approving or disapproving "related party transactions," which are transactions between us and related persons in which 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 will be defined as a director, executive officer, nominee for director, or greater than 5% beneficial owner of our common stock, in each case since the beginning of the most recently completed year, and their immediate family members.

PRINCIPAL STOCKHOLDERS

The following table sets forth information, to the extent known by us or ascertainable from public filings, with respect to the beneficial ownership of our common stock as of July 31, 2023, by:

- each of our directors;
- each of our named executive officers;
- all of our directors and executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own 5% or more of our common stock.

The column entitled “Shares Beneficially Owned” is based on a total of 73,692,745 shares of our common stock outstanding as of July 31, 2023.

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 July 31, 2023, are considered outstanding and beneficially owned by the person holding the options for the purpose of calculating the percentage ownership of that person but not for the purpose of calculating the percentage ownership of any other person. Except as otherwise noted, the persons and entities in this table have sole voting and investing power with respect to all of the shares of our common stock beneficially owned by them, subject to community property laws, where applicable. Except as otherwise indicated in the table below, addresses of named beneficial owners are in care of Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 04160.

Name of Beneficial Owner	Shares Beneficially Owned	Percentage of Shares Beneficially Owned
5% or Greater Stockholders:		
Flagship Pioneering ⁽¹⁾	29,251,545	39.7%
FMR LLC ⁽²⁾	11,033,193	15.0%
Nestlé S.A. ⁽³⁾	11,105,438	15.1%
HarbourVest Partners, LLC ⁽⁴⁾	6,207,929	8.4%
Directors, Named Executive Officers and Other Executive Officers		
William R. Hinshaw, Jr. ⁽⁵⁾	1,595,869	2.2%
Paul Fehlner, J.D., Ph.D. ⁽⁶⁾	273,534	*
Margaret James Koziel, M.D. ⁽⁷⁾	24,283	*
Robert Crane ⁽⁸⁾	45,364	*
Martin Hendrix, Ph.D. ⁽⁹⁾	16,667	*
Catherine Angell Sohn, Pharm.D. ⁽¹⁰⁾	80,097	*
William D. “Chip” Baird ⁽¹¹⁾	113,031	*
Gary P. Pisano, Ph.D. ⁽¹²⁾	153,798	*
Cristina M. Rondinone, Ph.D. ⁽¹³⁾	108,144	*
Paul Sekhri ⁽¹⁴⁾	16,667	*
Michael Rosenblatt ⁽¹⁵⁾	29,898	*
Robert Rosiello ⁽¹⁶⁾	10,000	*
Torben Straight Nissen ⁽¹⁷⁾	10,000	*
All executive officers and directors as a group (13 persons)	2,477,352	3.4%

* Represents beneficial ownership of less than one percent.

- (1) Based solely on a Schedule 13D/A filed with the SEC on October 17, 2022, consists of (i) 2,035,830 shares of common stock held by Flagship VentureLabs IV, LLC (“VentureLabs IV”) (ii) 14,101,638 shares of common stock held by Flagship Ventures Fund IV, L.P. (“Flagship Ventures Fund IV General Partner LLC”) (iii) 2,004,657 share of common stock held by Flagship Ventures Fund IV-Rx, L.P. (Flagship Ventures Fund IV General Partner LLC) (iv) 1,761,029 shares of common stock held by Flagship Ventures Fund 2007, L.P. (Flagship Ventures 2007 General Partner LLC) (v) 6,299,611 shares of common stock held by Flagship Ventures Opportunities Fund I, L.P. (“Flagship Ventures Opportunities Fund I General Partner LLC”) (vi) 3,048,780 shares of common stock held by FPA, L.P. Noubar B. Afeyan, Ph.D. is the sole manager of Flagship Fund IV GP, Flagship Fund 2007 GP and Flagship Opportunities GP, and he may be deemed to beneficially own the shares directly held by the Flagship Fund IV Funds, Flagship Fund 2007, and Flagship Opportunities. Effective May 11, 2020, Mr. Kania retired from Flagship Pioneering, Inc. and as manager of Flagship Fund IV GP and Flagship Fund 2007 GP. The address of each of the entities and individuals listed above is 55 Cambridge Parkway, Suite 800E, Cambridge, MA 02142.
- (2) Based solely on a Schedule 13G/A filed with the SEC on February 9, 2023, FMR LLC has sole voting power with respect to 11,033,193 shares and sole dispositive power over 11,033,193 shares and Abigail P. Johnson has sole dispositive power over 11,033,193 shares. 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 (“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. The address of FMR LLC is 245 Summer Street, Boston, Massachusetts 02210.
- (3) Based solely on a Schedule 13G/A filed with the SEC on February 2, 2023, (i) Société des Produits Nestlé S.A. (“SPN”) and (ii) Nestlé S.A. (“Nestlé”), the ultimate parent of SPN, each has shared voting power and shared dispositive power with respect to 11,105,438 shares. Nestlé disclaims beneficial ownership of such shares of Common Stock except to the extent of its pecuniary interest therein. The principal executive office of SPN and Nestlé is Avenue Nestlé 55, CH-1800, Vevey Switzerland.
- (4) Based solely on a Schedule 13G/A filed with the SEC on February 14, 2023, consists of 6,207,929 shares common stock owned directly by SMRS-TOPE LLC. HarbourVest Partners, LLC (“HarbourVest”) is the General Partner of HarbourVest Partners L.P., which is the Manager of HVST-TOPE LLC, which is the Managing Member of SMRS-TOPE LLC. Each of HarbourVest, HarbourVest Partners L.P. and HVST-TOPE LLC may be deemed to have a beneficial interest in the shares held by SMRS-TOPE LLC. SMRS-TOPE LLC has the sole power to vote or to direct the vote of; and, to dispose or to direct the disposition of 6,207,929 shares of common stock. HarbourVest, HarbourVest Partners L.P. and HVST-TOPE LLC may be deemed to have shared power to vote or to direct the vote of; and, to dispose or to direct the disposition of 6,207,929 shares of common stock. Voting and investment power over the securities owned directly by SMRS-TOPE LLC is exercised by the Investment Committee of HarbourVest. Each of HarbourVest, HarbourVest Partners L.P. and HVST-TOPE LLC and the members of the HarbourVest Investment Committee disclaim beneficial ownership of the shares held directly by SMRS-TOPE LLC. The principal business office of each HarbourVest Partners, LLC, HarbourVest Partners L.P., HVST-TOPE LLC and SMRS-TOPE LLC is One Financial Center, Boston, MA 02111.
- (5) Consists of 83,928 shares of common stock and 1,511,941 shares of common stock underlying options exercisable within 60 days of July 31, 2023.

- (6) Consists of 58,081 shares of common stock and 215,453 shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (7) Consists entirely of shares of common stock.
- (8) Consists entirely of shares of common stock.
- (9) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (10) Consists of 7,097 shares of common stock and 73,000 shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (11) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (12) Consists of 91,798 shares of common stock and 62,000 shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (13) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (14) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (15) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (16) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.
- (17) Consists entirely of shares of common stock underlying options exercisable within 60 days of July 31, 2023.

DELINQUENT SECTION 16(a) REPORTS

Section 16(a) of the Exchange Act requires our directors, executive officers, and persons holding more than 10% of our common stock to report their initial ownership of the common stock and other equity securities and any changes in that ownership in reports that must be filed with the SEC. The SEC has designated specific deadlines for these reports, and we must identify in our Annual Report on Form 10-K those persons who did not file these reports when due.

Based solely on a review of reports furnished to us, or written representations from reporting persons, we believe all directors, executive officers, and 10% owners timely filed all reports regarding transactions in our securities required to be filed for 2022 by Section 16(a) under the Exchange Act, except that Mr. Epstein filed two late Forms 4 for the transactions that occurred on February 18, 2022 that was filed on February 23, 2022 and on May 19, 2022 that was filed on June 3, 2022, each due to an administrative error, and Mr. Sekhri filed one late Form 4 for the transaction that occurred on May 19, 2022 that was filed on May 25, 2022 due to an administrative error.

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 Axcella's 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 Axcella's independent registered public accounting firm, (3) the performance of Axcella's internal audit function, if any, and (4) other matters as set forth in the charter of the audit committee approved by the board of directors.

Management is responsible for the preparation of Axcella's 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 Axcella's 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 Axcella for the fiscal year ended December 31, 2022. The audit committee also discussed with the independent registered public accounting firm the matters required to be discussed by the PCAOB's Auditing Standard No. 1301, *Communication with Audit Committees*. In addition, the audit committee received written communications from the independent registered public accounting firm confirming their independence as required by the applicable requirements of the PCAOB and has discussed with the independent registered public accounting firm their independence.

Based on the reviews and discussions referred to above, the audit committee recommended to the board of directors that the audited consolidated financial statements of Axcella be included in Axcella's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, 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 AXCELLA HEALTH INC.

William D. "Chip" Baird, Chairperson
Gary P. Pisano, Ph.D.
Martin Hendrix, Ph.D.

August 18, 2023

GENERAL MATTERS

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 Axcella Therapeutics, Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 04160, Attention: Corporate Secretary, telephone: (857) 320-2200. 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 2024 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 May 18, 2024. 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 2022 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 Axcella Therapeutics, Axcella Therapeutics, P.O. Box 1270, Littleton, Massachusetts 04160. A proposal submitted outside the requirements of Rule 14a-8 under the Exchange Act will be considered untimely if received after July 9, 2024.

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

The required notice must be in writing and received by our corporate secretary at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year’s annual meeting. However, in the event that the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from the first anniversary of the preceding year’s annual meeting, a stockholder’s notice must be so received no earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the tenth day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs. For stockholder proposals to be brought before the 2024 Annual Meeting of Stockholders, the required notice must be received by our corporate secretary at our principal executive offices no earlier than May 15, 2024, and no later than June 14, 2024. To comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than the Company’s nominees must provide notice by the same deadline noted herein to submit a notice of nomination at an annual meeting of stockholders. Such notice must comply with the additional requirements of Rule 14a-19(b). Stockholder proposals and the required notice should be addressed to Axcella Therapeutics, 840 Memorial Drive, Cambridge, Massachusetts 02139, Attention: Corporate Secretary.

Other Matters

Our board of directors does not know of any other matters to be brought before the virtual 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.

CERTIFICATE OF AMENDMENT

TO

RESTATED CERTIFICATE OF INCORPORATION

OF

AXCELLA HEALTH INC.

Axcella Health Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the “Corporation”), does hereby certify as follows:

FIRST: That the Board of Directors of the Corporation duly adopted resolutions recommending and declaring advisable that the Restated Certificate of Incorporation of the Corporation be amended and that such amendment be submitted to the stockholders of the Corporation for their consideration, as follows:

RESOLVED, that the first sentence of Article FOURTH of the Restated Certificate of Incorporation be, and hereby is, amended and restated in its entirety to read as follows:

“That, effective at 5:00 p.m., Eastern time, on the date this Certificate of Amendment to the Restated Certificate of Incorporation is filed with the Secretary of State of the State of Delaware (the “Effective Time”), a one-for-[]¹ reverse stock split of the Common Stock (as defined below) shall become effective, pursuant to which each []¹ shares of Common Stock issued and held of record by each stockholder of the Corporation (including treasury shares) immediately prior to the Effective Time shall be reclassified and combined into one validly issued, fully paid and nonassessable share of Common Stock automatically and without any action by the holder thereof upon the Effective Time and shall represent one share of Common Stock from and after the Effective Time (such reclassification and combination of shares, the “Reverse Stock Split”). No fractional shares of Common Stock shall be issued as a result of the Reverse Stock Split and, in lieu thereof, (a) with respect to holders of one or more certificates, if any, which formerly represented shares of Common Stock that were issued and outstanding immediately prior to the Effective Time, upon surrender after the Effective Time of such certificate or certificates, any holder who would otherwise be entitled to a fractional share of Common Stock as a result of the Reverse Stock Split, following the Effective Time, shall be entitled to receive a cash payment (the “Fractional Share Payment”) equal to the fraction of which such holder would otherwise be entitled multiplied by the closing price per share of Common Stock on the date of the Effective Time as reported by The Nasdaq Global Select Market (as adjusted to give effect to the Reverse Stock Split); provided that, whether or not fractional shares would be issuable as a result of the Reverse Stock Split shall be determined on the basis of (i) the total number of shares of Common Stock that were issued and outstanding immediately prior to the Effective Time formerly represented by certificates that the holder is at the time surrendering and (ii) the aggregate number of shares of Common Stock after the Effective Time into which the shares of Common Stock formerly represented by such certificates shall have been reclassified; and (b) with respect to holders of shares of Common Stock in book-entry form in the records of the Corporation’s transfer agent that were issued and

¹ Shall be a whole number between and including two and twenty-five, which number is referred to as the “Reverse Split Factor” (it being understood that any Reverse Split Factor within such range shall, together with the remaining provisions of this Certificate of Amendment not appearing in brackets, constitute a separate amendment being approved and adopted by the board of directors and stockholders in accordance with Section 242 of the Delaware General Corporation Law).

outstanding immediately prior to the Effective Time, any holder who would otherwise be entitled to a fractional share of Common Stock as a result of the Reverse Stock Split (after aggregating all fractional shares), following the Effective Time, shall be entitled to receive the Fractional Share Payment automatically and without any action by the holder.

The total number of shares of all classes of stock which the Corporation shall have authority to issue is 160,000,000 shares, consisting of (a) 150,000,000 shares of Common Stock, \$0.001 par value per share ("Common Stock"), and (b) 10,000,000 shares of Preferred Stock, \$0.001 par value per share ("Preferred Stock")."

SECOND: That, at a meeting of stockholders of the Corporation, the aforesaid amendment was duly adopted by the stockholders of the Corporation.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its on this day of 2023.

AXCELLA HEALTH INC.

By: _____
Name:
Title:

AXCELLA HEALTH INC.
P.O. BOX 1270
LITTLETON, MASSACHUSETTS 01460



SCAN TO
VIEW MATERIALS & VOTE



VOTE BY INTERNET

Before The Meeting - Go to www.proxyvote.com or scan the QR Barcode above

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 p.m. Eastern Time on September 10, 2023. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

During The Meeting - Go to www.virtualshareholdermeeting.com/AXLA2023

You may attend the meeting via the Internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and follow the instructions.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 p.m. Eastern Time on September 10, 2023. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717. Proxy cards submitted by mail must be received no later than 11:59 p.m. Eastern Time on September 10, 2023 to be voted at the annual meeting.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

V21517-P98096

KEEP THIS PORTION FOR YOUR RECORDS
DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

AXCELLA HEALTH INC.

The Board of Directors recommends you vote FOR the following:

1. To elect three Class I directors to our board of directors, to serve until the 2026 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.

For All **Withhold All** **For All Except**

☐ ☐ ☐

To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.

Nominees:

- 01) Torben Straight Nissen, Ph.D.
02) Michael Rosenblatt, M.D.
03) William D. "Chip" Baird

The Board of Directors recommends you vote FOR the following proposals:

For Against Abstain

2. To ratify the appointment of Deloitte & Touche LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023.
3. To approve amendments to our restated certificate of incorporation to effect a reverse stock split of our Common Stock at a ratio ranging from any whole number between 1-for-2 and 1-for-25, as determined by our board of directors in its discretion, subject to the board of directors' authority to abandon such amendments.
4. To approve an adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Annual Meeting to approve Proposal 3.

☐ ☐ ☐
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Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

Signature [PLEASE SIGN WITHIN BOX]

Date

Signature (Joint Owners)

Date

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:

The Proxy Statement and Annual Report are available at www.proxyvote.com.

V21518-P98096

**AXCELLA HEALTH INC.
ANNUAL MEETING OF STOCKHOLDERS
September 11, 2023 10:00 AM Eastern Time
THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS**

The stockholder(s) hereby appoint(s) William R. Hinshaw, Jr. and Paul Fehlner, or either of them, as proxies, each with the power to appoint his substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of AXCELLA HEALTH INC. that the stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders to be held on September 11, 2023 10:00 AM Eastern Time virtually at www.virtualshareholdermeeting.com/AXLA2023 and any adjournment or postponement thereof. The stockholder(s) acknowledge(s) receipt from the Company prior to the execution of the proxy of the Proxy Statement and Annual Report, and revokes any proxy heretofore given with respect to the Annual Meeting.

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.

Continued and to be signed on reverse side