
**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**

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 Pursuant to § 240.14a-12

Bionano Genomics, 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.
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BIONANO GENOMICS, INC.

**9540 Towne Centre Drive, Suite 100
San Diego, CA 92121**



NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To Be Held On June 14, 2023

Dear Stockholders:

You are cordially invited to attend the 2023 Annual Meeting of Stockholders (the "Annual Meeting") of Bionano Genomics, Inc., a Delaware corporation (the "Company"), to be held on Wednesday, June 14, 2023, at 10:00 a.m. Pacific Time. The Annual Meeting will be held in a virtual meeting format only, via live webcast on the Internet, with no physical in-person meeting. You will be able to attend and participate in the Annual Meeting online by visiting www.virtualshareholdermeeting.com/BNGO2023, where you will be able to listen to the meeting live, submit questions and vote. You will need to have the control number included in the Notice of Internet Availability of Proxy Materials, on your voting instruction form, on your proxy card or on the instructions that accompanied your proxy materials to join the virtual Annual Meeting. **As always, we encourage you to vote your shares prior to the Annual Meeting.**

You are being asked to vote on the following matters:

1. To elect the three nominees for Class II director named in the accompanying proxy statement, each to hold office until the 2026 Annual Meeting of Stockholders or until a successor is duly elected and qualified or until the director's earlier death, resignation or removal. We refer to this proposal as the "Director Election Proposal" or "Proposal 1."
2. To approve, on an advisory basis, the compensation of the Company's named executive officers, as disclosed in the accompanying proxy statement. We refer to this proposal as the "Say-On-Pay Proposal" or "Proposal 2."
3. To ratify the selection of BDO USA, LLP by the Audit Committee of the Board of Directors to serve as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2023. We refer to this proposal as the "Auditor Ratification Proposal" or "Proposal 3."
4. To approve a series of alternate amendments to the Company's Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-5 and 1-for-10, inclusive, as determined by our Board of Directors in its sole discretion. We refer to this as the "Reverse Stock Split Proposal" or "Proposal 4."
5. To approve the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal 4 (the Reverse Stock Split Proposal). We refer to this as the "Adjournment Proposal" or "Proposal 5."
6. To conduct any other business properly brought before the meeting.

These items of business are more fully described in the Proxy Statement accompanying this Notice.

The Annual Meeting will be a completely virtual meeting of stockholders. To participate, vote or submit questions during the Annual Meeting via live webcast, please visit www.virtualshareholdermeeting.com/BNGO2023. **You will not be able to attend the Annual Meeting in person.**

The record date for the Annual Meeting is April 24, 2023. Stockholders of record must have the 16-digit control number that is shown on your Notice of Internet Availability of Proxy Materials or on your proxy card if you receive the proxy materials by mail. If your shares are held in street name and your voting instruction form or Notice of Internet Availability of Proxy Materials indicates that you may vote those shares through the <http://www.ProxyVote.com> website, then you may access, participate in, and vote at the Annual Meeting with the 16-digit control number indicated on that voting instruction form or Notice of Internet Availability of Proxy Materials. Otherwise, stockholders who hold their shares in street name should contact their bank, broker, or other nominee (preferably at least five days before the Annual Meeting) and obtain a “legal proxy” in order to be able to participate in or vote at the Annual Meeting.

Important Notice Regarding the Availability of Proxy Materials for the Stockholders’ Meeting to Be Held on Wednesday, June 14, 2023 at 10:00 a.m. Pacific Time via live webcast at www.virtualshareholdermeeting.com/BNGO2023.

The proxy statement and annual report to stockholders are available at www.proxyvote.com.

By Order of the Board of Directors,

/s/ R. Erik Holmlin, Ph.D.

R. Erik Holmlin, Ph.D.

Secretary

San Diego, California
April 28, 2023

You are cordially invited to attend the virtual Annual Meeting. Whether or not you expect to attend the Annual Meeting, PLEASE VOTE YOUR SHARES. As an alternative to voting online at the Annual Meeting, you may vote via the Internet, by telephone or, if you receive a paper proxy card, by mailing the completed proxy card. Voting instructions are provided in the Notice of Internet Availability of Proxy Materials, or, if you receive a paper proxy card by mail, the instructions are printed on your proxy card.

Even if you have voted by proxy, you may still vote online at the Annual Meeting.

BIONANO GENOMICS, INC.
9540 Towne Centre Drive, Suite 100
San Diego, CA 92121

PROXY STATEMENT
FOR THE 2023 ANNUAL MEETING OF STOCKHOLDERS

To Be Held on June 14, 2023

Our Board of Directors (sometimes referred to as the “Board”) is soliciting your proxy to vote at the 2023 Annual Meeting of Stockholders (the “Annual Meeting”) of Bionano Genomics, Inc., a Delaware corporation (sometimes referred to as “we,” “us,” the “Company” or “Bionano”) to be held virtually, via live webcast at www.virtualshareholdermeeting.com/BNGO2023, on Wednesday, June 14, 2023, at 10:00 a.m. Pacific Time, and any one or more adjournments or postponements thereof. Stockholders attending the virtual meeting will be afforded the same rights and opportunities to participate as they would at an in-person meeting.

For the Annual Meeting, we have elected to furnish our proxy materials, including this proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 (the “Annual Report”), to our stockholders primarily via the Internet. On or about April 28, 2023, we expect to mail to our stockholders a *Notice of Internet Availability of Proxy Materials* (the “Notice”) that contains notice of the Annual Meeting and instructions on how to access our proxy materials on the Internet, how to vote at the Annual Meeting and how to request printed copies of the proxy materials.

Stockholders of record at the close of business on April 24, 2023 (the “Record Date”) will be entitled to vote at the Annual Meeting. On the Record Date, there were 306,555,707 shares of common stock outstanding and entitled to vote and one share of Series A Preferred Stock outstanding. A list of stockholders entitled to vote at the Annual Meeting will be available for examination by stockholders for any purpose germane to the Annual Meeting for ten days before the Annual Meeting during normal business hours at our address above.

The Annual Report, which contains consolidated financial statements as of and for the fiscal year ended December 31, 2022, accompanies this proxy statement. You also may obtain a copy of the Annual Report that was filed with the Securities and Exchange Commission (the “SEC”), without charge, by writing to our Secretary at 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121, Attention: Secretary.

| Proposals | Page | Board Recommendation |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------|
| Proposal 1: Election of the three nominees for Class II director named herein, each to hold office until the 2026 Annual Meeting of Stockholders or until a successor is duly elected and qualified or until the director’s earlier death, resignation or removal (the “Director Election Proposal”). | 14 | For each director nominee |
| Proposal 2: Approval, on an advisory basis, of the compensation of the Company’s named executive officers as disclosed herein (the “Say-on-Pay Proposal”). | 28 | For |
| Proposal 3: Ratification of the selection of BDO USA, LLP by the Audit Committee of the Board of Directors to serve as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2023 (the “Auditor Ratification Proposal”). | 29 | For |
| Proposal 4: Approval of a series of alternate amendments to the Company’s Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-5 and 1-for-10, inclusive, as determined by our Board of Directors in its sole discretion (the “Reverse Stock Split Proposal”). | 31 | For |
| Proposal 5: Approval of the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal 4 (the Reverse Stock Split Proposal) (the “Adjournment Proposal”). | 40 | For |

Why did I receive a notice regarding the availability of proxy materials on the Internet?

Pursuant to rules adopted by the SEC, we have elected to provide access to our proxy materials over the Internet. Accordingly, we have sent you the Notice because the Board is soliciting your proxy to vote at the Annual Meeting, including at any one or more adjournments or postponements of the Annual Meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. Instructions on how to access the proxy materials over the Internet or to request a printed copy may be found in the Notice.

We intend to mail the Notice on or about April 28, 2023 to all stockholders of record entitled to vote at the Annual Meeting.

Will I receive any other proxy materials by mail?

We may send you a proxy card, along with a second Notice, on or after May 8, 2023.

Where and when is the Annual Meeting?

The Annual Meeting will be held on Wednesday, June 14, 2023, at 10:00 a.m. Pacific Time. The Annual Meeting will be held in a virtual meeting format only, via live webcast on the Internet, with no physical in-person meeting. A summary of the information you need to attend the Annual Meeting online is provided below:

- Any stockholder may listen to the Annual Meeting and participate live via webcast at www.virtualshareholdermeeting.com/BNGO2023. The webcast will begin at 10:00 a.m. Pacific Time.
- Stockholders of record as of the Record Date may vote and submit questions during the Annual Meeting via live webcast.
- Stockholders of record as of the Record Date may also submit questions no earlier than 15 minutes prior to the beginning of the webcast for the Annual Meeting by logging in to www.virtualshareholdermeeting.com/BNGO2023 and entering the control number included on the Notice, voting instruction form or proxy card.
- To enter the meeting, please enter your control number.
- If you do not have your control number, you will be able to listen to the meeting only and you will not be able to vote or submit questions during the meeting.
- Instructions on how to connect to and participate in the Annual Meeting via the Internet are posted at www.virtualshareholdermeeting.com/BNGO2023.

We recommend that you log in approximately 5 minutes before 10:00 a.m. Pacific Time to ensure you are logged in when the Annual Meeting starts. The information on our website is not incorporated by reference into this proxy statement or our Annual Report for fiscal year 2022.

If you plan to vote during the Annual Meeting, you may still do so even if you have already returned your proxy.

What do I need in order to be able to participate in the Annual Meeting online?

You will need the control number included on your Notice, voting instruction form or your proxy card in order to be able to vote your shares or submit questions during the Annual Meeting. If you do not have your control number, you will be able to listen to the meeting only, you will not be able to vote or submit questions during the meeting. Instructions on how to connect and participate in the Annual Meeting via the Internet are posted at www.virtualshareholdermeeting.com/BNGO2023.

What if during the Annual Meeting I have technical difficulties or trouble accessing the live webcast of the Annual Meeting?

On the day of the Annual Meeting, if you encounter any difficulties accessing the live webcast of the Annual Meeting or during the Annual Meeting, please call the technical support number that will be posted on the log-in page for our virtual Annual Meeting for assistance.

Who can vote at the Annual Meeting?

On the Record Date, there were 306,555,707 shares of common stock outstanding and entitled to vote and one share of Series A Preferred Stock outstanding. The share of Series A Preferred Stock may only vote on the Reverse Stock Split Proposal as described below.

Stockholder of Record: Shares Registered in Your Name

If on the Record Date, your shares were registered directly in your name with our transfer agent, American Stock Transfer & Trust Company, LLC, then you are a stockholder of record. As a stockholder of record, you may vote at the Annual Meeting or vote by proxy. Whether or not you plan to attend the Annual Meeting virtually, we urge you to fill out and return the proxy card that may be mailed to you, or vote by proxy over the telephone or on the Internet as instructed below to ensure your vote is counted.

Beneficial Owner: Shares Registered in the Name of a Broker or Bank

If on the Record Date, your shares were held, not in your name, but rather in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in “street name.” The organization holding your account is considered to be the stockholder of record for purposes of voting at the Annual Meeting. However, if your voting instruction form or Notice of Internet Availability of Proxy Materials indicates that you may vote those shares through the <http://www.ProxyVote.com> website, then you may access, participate in, and vote at the Annual Meeting with the 16-digit control number indicated on that voting instruction form or Notice of Internet Availability of Proxy Materials. Otherwise, stockholders who hold their shares in street name should contact their bank, broker, or other nominee (preferably at least five days before the Annual Meeting) and obtain a “legal proxy” in order to be able to participate in or vote at the Annual Meeting. As a beneficial owner, you also have the right to direct your broker, bank, dealer or other agent regarding how to vote the shares in your account. You are also invited to attend the Annual Meeting virtually.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of the Record Date. The holder of the one outstanding share of our Series A Preferred Stock has 3,000,000,000 votes but has the right to vote **only** on the Reverse Stock Split Proposal and the Series A Preferred Stock votes **must be voted in the same proportion as the votes cast by shares of common stock on such proposal**. For example, if 60% of the votes cast by holders of common stock for the Reverse Stock Split Proposal vote “For” the proposal and 40% vote “Against” the proposal, the holder of the share of Series A Preferred Stock will cast 1,800,000,000 votes “For” the Reverse Stock Split Proposal and 1,200,000,000 votes “Against” the Reverse Stock Split Proposal. The Series A Preferred Stock will vote on the Reverse Stock Split Proposal as a single class with the common stock. The share of Series A Preferred Stock will be automatically redeemed by us effective upon the approval of the Reverse Stock Split Proposal.

What am I voting on?

There are five matters scheduled for a vote:

- Proposal 1: Election of the three nominees for Class II director named herein, each to hold office until the 2026 Annual Meeting of Stockholders or until a successor is duly elected and qualified or until the director’s earlier death, resignation or removal;
- Proposal 2: Approval, on an advisory basis, of the compensation of the Company’s named executive officers as disclosed herein;
- Proposal 3: Ratification of the selection of BDO USA, LLP by the Audit Committee of the Board of Directors (the “Audit Committee”) to serve as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2023;
- Proposal 4: Approval of a series of alternate amendments to the Company’s Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-5 and 1-for-10, inclusive, as determined by our Board of Directors in its sole discretion; and
- Proposal 5: Approval of the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of the Proposal 4 (the Reverse Stock Split Proposal).

What if another matter is properly brought before the Annual Meeting?

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the Annual Meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment. This discretionary authority is granted when you sign the form of proxy.

How do I vote?

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote at the Annual Meeting, vote by proxy over the telephone, vote by proxy through the Internet or vote by proxy using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the Annual Meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the Annual Meeting and vote online during the meeting even if you have already voted by proxy.

- **VOTE BY INTERNET:** To vote through the Internet, go to www.proxyvote.com to complete an electronic proxy card. You will be asked to provide the control number from the Notice, voting instruction form or proxy card. Your Internet vote must be received by 11:59 p.m., Eastern Time on June 13, 2023 to be counted.
- **VOTE BY PHONE:** To vote over the telephone, dial toll-free 800-690-6903 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company number and control number from the Notice, voting instruction form or proxy card. Your telephone vote must be received by 11:59 p.m., Eastern Time on June 13, 2023 to be counted.
- **VOTE BY PROXY CARD:** To vote using the proxy card, simply complete, sign and date the proxy card that may be delivered to you and return it promptly in the envelope provided. If you return your signed proxy card to us before the Annual Meeting, we will vote your shares as you direct.
- **VOTE DURING MEETING:** To vote online during the Annual Meeting, follow the provided instructions to join the Annual Meeting at www.virtualshareholdermeeting.com/BNGO2023, starting at 10:00 a.m. Pacific Time on Wednesday, June 14, 2023.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank, dealer or other agent, you should have received the Notice or voting instruction form containing voting instructions from that organization rather than from us. Simply follow the voting instructions in the Notice or voting instruction form to ensure that your vote is counted. Alternatively, you may vote by telephone or over the Internet as instructed by your broker or bank. To vote online during the Annual Meeting, you will need the 16-digit control number included on your Notice, on your proxy card or on the instructions that accompanied your proxy materials.

Internet proxy voting may be provided to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your Internet access, such as usage charges from Internet access providers and telephone companies.

Can I vote my shares by filling out and returning the Notice?

No. The Notice identifies the items to be voted on at the Annual Meeting, but you cannot vote by marking the Notice and returning it. The Notice provides instructions on how to vote through the Internet, by telephone, by using a printed proxy card or by submitting a ballot online during the Annual Meeting.

If I am a stockholder of record and I do not vote, or if I return a proxy card or otherwise vote without giving specific voting instructions, what happens?

If you are a stockholder of record and do not vote by completing your proxy card, by telephone, through the Internet or online during the Annual Meeting, your shares will not be voted.

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted, as applicable, “For” the election of all three nominees for director under the Director Election Proposal, “For” the Say-On-Pay Proposal, “For” the Auditor Ratification Proposal, “For” the Reverse Stock Split Proposal and, if necessary, “For” the Adjournment Proposal. If any other matter is properly presented at the Annual Meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

If I am a beneficial owner of shares held in street name and I do not provide my broker or bank with voting instructions, what happens?

If you are a beneficial owner of shares held in street name and you do not instruct your broker how to vote your shares, the question of whether your broker will still be able to vote your shares depends on whether the New York Stock Exchange (“NYSE”) deems the particular proposal to be a “routine” matter. Although our shares are not listed with the NYSE, the NYSE regulates broker-dealers and their discretion to vote on stockholder proposals. Under the NYSE rules applicable to brokers and other similar organizations that are subject to NYSE rules, such organizations may use their discretion to vote your “uninstructed shares” with respect to matters considered to be “routine” under NYSE rules, but not with respect to “non-routine” matters. Under such rules and interpretations, non-routine matters are matters that may substantially affect the rights or privileges of stockholders, such as mergers, stockholder proposals, elections of directors (even if not contested), executive compensation (including any advisory stockholder votes on executive compensation and on the frequency of stockholder votes on executive compensation), and certain corporate governance proposals, even if management-supported. In this regard, the NYSE has advised us that Proposal 1 (the Director Election Proposal) and Proposal 2 (the Say-on-Pay Proposal) should each be considered “non-routine” and, accordingly, we believe that your broker may not vote your shares on such proposals without your instructions. The NYSE has also advised us that Proposal 3 (the Auditor Ratification Proposal), Proposal 4 (the Reverse Stock Split Proposal) and Proposal 5 (the Adjournment Proposal) should each be considered “routine” and, accordingly, we believe that your broker may vote your shares on such proposals without instructions from you. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of the NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

Accordingly, if you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker or bank by the deadline provided in the materials you receive from your broker or bank.

Who is paying for this proxy solicitation?

Bionano will pay for the entire cost of soliciting proxies. In addition to these proxy materials, our directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks, dealers and other agents for the cost of forwarding proxy materials to beneficial owners. In addition, we have engaged Morrow Sodali LLC to assist in the solicitation of proxies and provide related advice and informational support, for a services fee and the reimbursement of customary disbursements, which are not expected to exceed \$20,000 in total. If you have any questions regarding this proxy statement, you may contact Morrow Sodali LLC at (203) 561-6945.

What does it mean if I receive more than one Notice?

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on each Notice to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?

Stockholder of Record: Shares Registered in Your Name

Yes. You can revoke your proxy at any time before the final vote at the Annual Meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- You may submit another properly completed proxy card with a later date.
- You may grant a subsequent proxy by telephone or through the Internet.

- You may send a timely written notice that you are revoking your proxy to: Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121.
- You may vote during the Annual Meeting which will be hosted via the Internet. Simply attending the Annual Meeting online will not, by itself, revoke your proxy. Even if you plan to attend the Annual Meeting online, we recommend that you also submit your proxy or voting instructions or vote by telephone or through the Internet so that your vote will be counted if you later decide not to attend the Annual Meeting online.

Your most current proxy card or telephone or Internet proxy is the one that is counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If your shares are held by your broker or bank, you should follow the instructions provided by your broker or bank.

When are stockholder proposals and director nominations due for next year's Annual Meeting?

To be considered for inclusion in the Company's proxy materials for next year's annual meeting, your proposal must be submitted in writing by December 30, 2023, to: Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121. If you wish to submit a proposal (including a director nomination) that is not to be included in the Company's proxy materials for next year's annual meeting, you must do so between February 15, 2024 and March 16, 2024. You are also advised to review the Company's amended and restated bylaws (the "Bylaws"), which contain additional requirements relating to advance notice of stockholder proposals and director nominations.

In addition to satisfying the foregoing requirements under our Bylaws, to comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than our Board's nominees must also comply with the additional requirements of Rule 14a-19(b) promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act").

What are "broker non-votes"?

When a beneficial owner of shares held in "street name" does not give instructions to the broker holding the shares as to how to vote on matters deemed to be "non-routine" under NYSE rules, the broker cannot vote the shares. These unvoted shares with respect to "non-routine" matters are counted as "broker non-votes."

As a reminder, if you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker or bank by the deadline provided in the materials you receive from your broker or bank.

How are votes counted?

Each share of our common stock you own entitles you to one vote. The inspector of elections will count votes for the meeting.

With respect to Proposal 1 (the Director Election Proposal), the inspector of elections will separately count votes "For," "Withhold" and, if applicable, broker non-votes. Stockholders do not affirmatively vote "Against" nominees. Instead, if you do not want to elect a particular nominee, you should choose to "Withhold" a vote in favor of the applicable nominee and the inspector of elections will count each "Withhold" vote for each nominee. Because our Bylaws provide for a plurality vote standard for Proposal 1 (Director Election Proposal), only votes "For" a nominee will affect the outcome of the vote.

With respect to Proposal 2 (the Say-On-Pay Proposal), Proposal 3 (the Auditor Ratification Proposal), Proposal 4 (the Reverse Stock Split Proposal) and Proposal 5 (the Adjournment Proposal), the inspector of elections will separately count votes "For" and "Against," abstentions and, as applicable, broker non-votes.

Abstentions will be counted towards the vote total and will have the same effect as "Against" votes for Proposal 2 (the Say-On-Pay Proposal), Proposal 3 (the Auditor Ratification Proposal), Proposal 4 (the Reverse Stock Split Proposal) and Proposal 5 (the Adjournment Proposal). You will not have the option to abstain from Proposal 1 (the Director Election Proposal).

We believe that broker non-votes will be counted towards the presence of a quorum but will have no effect and will not be counted towards the vote total for Proposal 1 (the Director Election Proposal) and Proposal 2 (the Say-On-Pay Proposal) because we have been advised by the NYSE that these proposals should be considered “non-routine” under NYSE rules, and accordingly, we believe that your broker may not vote your shares on such proposals without instructions from you. In the event any broker non-votes are received on Proposal 1 (the Director Election Proposal), they will have no effect on such proposal because the voting standard on Proposal 1 (the Director Election Proposal) counts only votes cast and a broker non-vote is not a vote cast under Delaware law. In the event any broker non-votes are received on Proposal 2 (the Say-On-Pay Proposal), they will have no effect because broker non-votes are not considered entitled to vote on such proposal under Delaware law. We do not anticipate broker non-votes for Proposal 3 (the Auditor Ratification Proposal), Proposal 4 (the Reverse Stock Split Proposal) and Proposal 5 (the Adjournment Proposal) because we have been advised by the NYSE that these proposals should be considered “routine” under NYSE rules, and accordingly, we believe that your broker may vote your shares on such proposals without instructions from you; however, to the extent there are broker non-votes for Proposal 4 (the Reverse Stock Split Proposal), we believe such broker non-votes will be counted as votes “Against” such proposals. With respect to Proposal 3 (the Auditor Ratification Proposal) and Proposal 5 (the Adjournment Proposal), we believe broker non-votes will have no effect because they are not considered entitled to vote on such proposals under Delaware law. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of the NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

How many votes are needed to approve each proposal?

The following table summarizes the minimum vote needed to approve each proposal and the effect of abstentions and broker non-votes.

| <u>Proposal Number</u> | <u>Proposal Description</u> | <u>Vote Required for Approval</u> | <u>Effect of Abstentions</u> | <u>Effect of Broker Non-Votes</u> |
|------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------|
| 1 | Director Election Proposal | Nominees receiving the most “For” votes from the holders of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting; “Withhold” votes will have no effect; the Series A Preferred Stock is not entitled to vote on this proposal. | No effect | No effect |
| 2 | Say-on-Pay Proposal | “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting; the Series A Preferred Stock is not entitled to vote on this proposal. | Against | No effect |
| 3 | Auditor Ratification Proposal | “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting; the Series A Preferred Stock is not entitled to vote on this proposal. | Against | No effect ⁽¹⁾ |
| 4 | Reverse Stock Split Proposal | “For” votes from the holders of a majority of the voting power of the outstanding shares of our common stock and the one share of Series A Preferred Stock, voting together as a single class. | Against ⁽²⁾ | Against ⁽¹⁾ (2) |
| 5 | Adjournment Proposal | “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting; the Series A Preferred Stock is not entitled to vote on this proposal. | Against | No effect ⁽¹⁾ |

⁽¹⁾ NYSE has advised us that this proposal should be considered a “routine” matter under NYSE rules. Although our shares are not listed with the NYSE, the NYSE regulates broker-dealers and their discretion to vote on stockholder proposals. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions. Accordingly, if you hold your shares in street name and do not provide voting instructions to your broker that holds your shares, we believe your broker should have discretionary authority under NYSE rules to vote your shares on this proposal absent additional instructions from you. Given such discretionary authority, we do not anticipate broker non-votes for this proposal.

⁽²⁾ Although abstentions and broker non-votes, if any, will technically have the same effect as “Against” votes, because the share of Series A Preferred Stock has 3,000,000,000 votes and will vote in a manner that mirrors votes actually cast (which does not include abstentions or broker non-votes), abstentions and broker non-votes, if any, will have virtually no effect on the outcome of the Reverse Stock Split Proposal. Therefore, if you do not wish for the Reverse Stock Split Proposal to pass, you should vote “Against” this proposal.

What is the quorum requirement?

A quorum of stockholders is necessary to hold the Annual Meeting. The presence, by virtual attendance or by proxy, of the holders of one-third in voting power of the shares of common stock and Series A Preferred Stock issued and outstanding on the Record Date and entitled to vote at a meeting of stockholders will constitute a quorum for the transaction of business at the Annual Meeting. On the Record Date, there were 306,555,707 shares of common stock

outstanding and entitled to vote and one share of Series A Preferred Stock outstanding. **Thus, in addition to the presence of the Series A Preferred Stock at the meeting, the holders of 102,185,236 shares of common stock must be present by virtual attendance or represented by proxy at the Annual Meeting to have a quorum.**

In addition, unless at least one-third of the shares of common stock outstanding on the Record Date are present by virtual attendance at the Annual Meeting or represented by proxy, the holder of Series A Preferred Stock will not cast any votes on the Reverse Stock Split Proposal.

Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank, dealer or other agent) or if you vote online during the Annual Meeting. Abstentions and broker non-votes, if any, will be counted towards the quorum requirement. If there is no quorum, the chair of the Annual Meeting or the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy may adjourn the Annual Meeting to another date.

How can I find out the results of the voting at the Annual Meeting?

Preliminary voting results will be announced at the Annual Meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file with the SEC within four business days after the Annual Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Annual Meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

FORWARD-LOOKING STATEMENTS

This proxy statement contains certain “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, relating to future events, including, without limitation, our beliefs regarding the determinations of NYSE with respect to the proposals in this proxy statement. Such statements are only predictions and involve risks and uncertainties, resulting in the possibility that the actual events or performance will differ materially from such predictions. For a nonexclusive list of major factors which could cause the actual results to differ materially from the predicted results in the forward-looking statements, please refer to the “Risk Factors” in Part I, Item 1A of the Annual Report and in our subsequent periodic reports on Form 10-Q and Form 8-K.

PROPOSAL 1

ELECTION OF DIRECTORS

The Board is divided into three classes. Each class consists, as nearly as possible, of one-third of the total number of directors, and each class has a three-year term. Vacancies on the Board may be filled only by persons elected by a majority of the remaining directors. A director elected by the Board to fill a vacancy in a class, including vacancies created by an increase in the number of directors, shall serve for the remainder of the full term of that class and until the director's successor is duly elected and qualified.

At this time, the Board believes that the classified board structure is in the best interests of the Company and its stockholders. The classified board structure and corresponding three-year terms are intended to ensure that our directors have sufficient institutional knowledge of our business, corporate strategy and corporate objectives while also allowing for corporate continuity and stability of the Board, promoting the balance of long-term and short-term interests of the Company and its stockholders. Our Board believes a three-year term in office also allows our directors to stay focused on long-term value creation. Further, our Board believes that a classified board structure enables us to attract and retain diverse and highly qualified individuals willing to commit the time and dedication necessary to understand our business, its operations and its competitive environment. For example, a substantial amount of diversity on our Board is represented by directors who have joined our Board in the last three years. The structure also safeguards us from third-party takeover attempts, as it will require a longer period to change majority control of the Board.

The Board presently has nine members. There are three Class II directors whose term of office expire in 2023: Albert Luderer, Ph.D., Kristiina Vuori, M.D., Ph.D. and Hannah Mamuszka. Proxies may not be voted for a greater number of persons than the number of nominees named in this proxy statement. Each of the nominees is currently a director of the Company who was previously elected by the stockholders. Each of Dr. Luderer, Dr. Vuori and Ms. Mamuszka was recommended for nomination to the Board by the Nominating and Corporate Governance Committee of the Board (the "Nominating and Corporate Governance Committee"). If elected at the Annual Meeting, each of these nominees would serve until the 2026 Annual Meeting of Stockholders and until his or her successor has been duly elected and qualified, or, if sooner, until the director's death, resignation or removal. It is the Company's policy to encourage nominees for directors to attend the Annual Meeting. Five of the directors attended the 2022 Annual Meeting of Shareholders.

Vote Required

Directors are elected by a plurality of the votes of the holders of shares present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the election of directors. Accordingly, the three nominees receiving the highest number of affirmative votes will be elected. Shares represented by executed proxies will be voted, if authority to do so is not withheld, for the election of Dr. Luderer, Dr. Vuori and Ms. Mamuszka. If any nominee becomes unavailable for election as a result of an unexpected occurrence, shares that would have been voted for that nominee will instead be voted for the election of a substitute nominee proposed by the Company. Each of Dr. Luderer, Dr. Vuori and Ms. Mamuszka has agreed to serve if elected. The Company's management has no reason to believe that any nominee will be unable to serve.

The Series A Preferred Stock is not entitled to vote on this proposal. You will not have the option to abstain from this proposal. We believe that broker non-votes will be counted towards the presence of a quorum but will have no effect and will not be counted towards the vote total for this proposal because we have been advised by NYSE that this proposal should be considered "non-routine" under NYSE rules, and accordingly, we believe that your broker may not vote your shares on such proposal without instructions from you. Nevertheless, whether a proposal is "routine" or "non-routine" remains subject to the final determination of NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

NOMINEES

The Nominating and Corporate Governance Committee seeks to assemble a board that, as a whole, possesses the appropriate balance of professional and industry knowledge, financial expertise and high-level management experience necessary to oversee and direct the Company's business. To that end, the Nominating and Corporate Governance Committee has identified and evaluated nominees in the broader context of the Board's overall composition, with the goal of recruiting members who complement and strengthen the skills of

other members and who also exhibit integrity, collegiality, sound business judgment and other qualities that the Nominating and Corporate Governance Committee views as critical to the effective functioning of the Board. To provide a mix of experience and perspective on the Board, the Nominating and Corporate Governance Committee also seeks to attain diversity and balance among directors of race, ethnicity, gender, age, geography, thought, viewpoints, and backgrounds. The brief biographies below include information, as of the date of this proxy statement, regarding the specific and particular experience, qualifications, attributes or skills of each director or nominee that led the Nominating and Corporate Governance Committee to recommend that nominee should he or she continue to serve on the Board. However, each of the members of the Nominating and Corporate Governance Committee may have a variety of reasons why he or she believes a particular person would be an appropriate nominee for the Board, and these views may differ from the views of other members.

The following table sets forth, for the Class II nominees and our other directors who will continue in office after the Annual Meeting, their ages and position/office held with us as of the date of this proxy statement:

| Name | Age | Position/Office Held With the Company |
|------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------|
| <i>Class I directors, whose terms will expire at the 2025 Annual Meeting of Stockholders</i> | | |
| R. Erik Holmlin, Ph.D. | 55 | President, Chief Executive Officer and Director |
| David L. Barker, Ph.D. ⁽¹⁾⁽⁴⁾ | 81 | Chairman, Director |
| Vincent J. Wong, J.D., M.B.A. ⁽²⁾ | 51 | Director |
| <i>Class II directors for election at the Annual Meeting</i> | | |
| Albert Luderer, Ph.D. ⁽²⁾⁽³⁾⁽⁴⁾ | 74 | Director |
| Kristiina Vuori, M.D., Ph.D. ⁽¹⁾⁽³⁾⁽⁴⁾ | 55 | Director |
| Hannah Mamuszka ⁽¹⁾ | 46 | Director |
| <i>Class III directors whose terms will expire at the 2024 Annual Meeting of Stockholders</i> | | |
| Christopher Twomey ⁽²⁾ | 63 | Director |
| Yvonne Linney, Ph.D. ⁽³⁾ | 61 | Director |
| Aleksandar Rajkovic, M.D., Ph.D. ⁽⁴⁾ | 59 | Director |

(1) Member of the Compensation Committee of the Board (the "Compensation Committee")

(2) Member of the Audit Committee

(3) Member of the Nominating and Corporate Governance Committee

(4) Member of Science & Technology Committee

Set forth below is biographical information for the nominees and each person whose term of office as a director will continue after the Annual Meeting. This includes information regarding each director's experience, qualifications, attributes or skills that led our Board to recommend them for board service.

CLASS II DIRECTORS NOMINEES FOR ELECTION FOR A THREE-YEAR TERM EXPIRING AT THE 2026 ANNUAL MEETING

Albert Luderer, Ph.D. Dr. Luderer has served on our board of directors since October 2011. Since September 2013, Dr. Luderer has served as the Chief Executive Officer and a member of the board of directors of Indi Molecular, Inc., a private synthetic antibody technology company. He has also served as the Executive Chairman of the board of directors of Prostate Management Diagnostics Inc., a non-profit cancer research company, since January 2016, and as the Chairman of the board of directors and member of the compensation committee of AllerGenis, LLC, a private diagnostic company, since September 2021. Dr. Luderer previously served as the Chief Executive Officer of Integrated Diagnostics, Inc., a private molecular diagnostics company, from March 2010 to June 2018, when it was sold to Biondesix, Inc. Dr. Luderer has over 30 years of experience in executive leadership roles in the areas of technology development, operations and business development. Dr. Luderer received his B.A. in Zoology from Drew University and his M.S. in Immunochemistry and Ph.D. in Immunogenics from Rutgers University.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Luderer’s experience in the biotechnology sector, with special focuses on technology, business development and commercialization, qualifies him to serve as a member of our Board.

Kristina Vuori, M.D., Ph.D. Dr. Vuori has served on our board of directors since May 2019. Since January 1995, Dr. Vuori has served as Professor, and since January 2010 as Pauline and Stanley Foster Distinguished Chair, at the National Cancer Institute-designated Cancer Center of Sanford Burnham Prebys Medical Discovery Institute, or the Institute, a non-profit research organization with programs in cancer, neurodegeneration, diabetes, and infectious, inflammatory, and childhood diseases. In addition, Dr. Vuori served as President and member of the board of directors of the Institute from January 2010 to June 2022, and as the Institute’s interim CEO from January 2013 to September 2014, and from September 2017 to June 2020. She served as the Institute’s EVP for Scientific Affairs in 2008-2010, as Director of the Cancer Center in 2005-2013, and as Deputy Director of the Cancer Center in 2003-2005. Dr. Vuori has also served as a member of the board of directors of Inhibrx, Inc., a public biotechnology company, since October 2021, of Forian, Inc., a public health data analytics company, since March 2021, and of Sio Gene Therapies, Inc., a public gene therapy company, since October 2020. In addition, Dr. Vuori served on the board of directors of WebMD from July 2014 to September 2017 (when it was acquired by KKR & Co. Inc.) and of the California Institute for Regenerative Medicine, a governmental research institute, from January 2011 to December 2022. Dr. Vuori earned her M.D. and Ph.D. from the University of Oulu, Finland.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Vuori’s experience in biomedical research and as an educator of research scientists, her experience managing a large non-profit research organization, and her various leadership roles qualify her to serve on our Board.

Hannah Mamuszka. Ms. Mamuszka has served on our board of directors since May 2020. Since March 2016, Ms. Mamuszka has served as Founder and Chief Executive Officer of Alva10, Inc., a private market access strategy firm. Ms. Mamuszka has also served as an advisory board member of Carolina Health Informatics Program (CHIP), an interdisciplinary research and training program at the University of North Carolina, since January 2021 and served as a member of the board of directors of Circle Cardiovascular Imaging Inc., a private cardiac imaging company, from May 2021 to June 2022 (when it was acquired by Thomas Bravo). Ms. Mamuszka also served as an Executive Director of Precision Care Alliance, a non-profit focused on policy reform to enable diagnostic development, from April 2019 to May 2020. Additionally, from December 2010 to June 2015, she served as Vice President of Business Development and Clinical Strategy at Exosome Diagnostics, Inc., a private company developing liquid biopsy tests. Prior to joining Exosome, Ms. Mamuszka served as Director of Strategic Business Development, Companion Diagnostics at Asuragen, Inc., a private company focused on diagnostics and therapeutics. From January 2005 to January 2010, Ms. Mamuszka served in various director level positions, most recently as Global Director for Pharmaceutical Services, at Oncotech Inc., then by acquisition, at Exiqon A/S. Ms. Mamuszka has previously held various laboratory positions at ArQule, Inc., Millennium Pharmaceuticals Inc., Organogenesis, Inc. and the National Cancer Institute. Ms. Mamuszka received her B.S. in neurobiology and physiology from the University of Maryland at College Park and her M.S. in molecular biology from Harvard University.

Our Nominating and Corporate Governance Committee and Board believe that Ms. Mamuszka’s over 20 years of experience in the life sciences industry, extensive experience with diagnostics and various leadership roles qualify her to serve as a member of our Board.

**THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” EACH NAMED NOMINEE FOR PROPOSAL 1.**

CLASS III DIRECTORS CONTINUING IN OFFICE UNTIL THE 2024 ANNUAL MEETING

Christopher J. Twomey. Mr. Twomey has served on our board of directors since July 2018. Since August 2013, Mr. Twomey has served as a director and Chairman of the Audit Committee of Tandem Diabetes Care, Inc., a public medical device company. From March 1990 to June 2007, Mr. Twomey served in various roles, including as Senior Vice President, Finance and Chief Financial Officer, at Biosite Incorporated, a medical diagnostics company. From October 1981 to March 1990, Mr. Twomey served as an audit manager for Ernst & Young, LLP. Mr. Twomey served as a director of Senomyx, Inc., a taste technologies company, from March 2006 to November 2018 (when it was acquired by Firmenich SA). From July 2006 to March 2014, Mr. Twomey also served as a director and Chairman of the Audit Committee of Cadence Pharmaceuticals, Inc., a specialty pharmaceutical company that was acquired by Mallinckrodt plc in 2014. Mr. Twomey received his B.A. in Business Economics from the University of California at Santa Barbara.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Twomey's substantial leadership skills and expertise in accounting and financial reporting qualifies him to serve as a member of our Board, and that such skills are especially valuable in his role as Chairman of our Audit Committee.

Yvonne Linney, Ph.D. Dr. Linney has served on our board of directors since May 2020. Since January 2019, Dr. Linney has served as Principal at Linney BioConsulting, a private strategy development firm. Dr. Linney has also served as a member of the board of Sengenics Corporation, a private company developing tools for immunoprofiling for biodiscovery since January 2023. From January 2021 to September 2022, Dr. Linney served as Chief Operating Officer and member of the board of directors of Artificial, Inc., a private laboratory automation optimization software company, where she also served as a strategic advisor from September 2020 to January 2021. Dr. Linney has also served as a strategic advisor at the California Life Sciences Institute, a private life sciences membership organization, since March 2019, as a Boardroom Ready Member at Women in Bio, a private professional organization, since July 2019, and as a strategic advisor at Tag.bio, a private data science platform company, since January 2019. From December 2016 to November 2018, Dr. Linney served as the Chief Executive Officer and member of the board of directors of Transcriptic, Inc. (now Strateos, Inc.), a private robotic and cloud laboratory platform company, where she had previously served as Chief Operating Officer since October 2015. In addition, from November 2006 to January 2015, Dr. Linney served as Executive Vice President and General Manager, Life Science Solutions at Agilent Technologies, Inc., a public life sciences and diagnostics company. Prior to joining Agilent, Dr. Linney served as Director of Molecular Diagnostics and Global Strategic Marketing at Bayer Diagnostics (now part of Siemens Healthcare) from 2005 to 2006 and Senior Director, Marketing and Product Management at Caliper Life Sciences from 2003 to 2005. Dr. Linney holds a B.S. in Microbiology and Virology from Warwick University, UK, and a Ph.D. in Genetics from Leicester University, UK.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Linney's over 30 years of experience in leadership roles in the life sciences and diagnostics industries qualify her to serve as a member of our Board.

Aleksandar Rajkovic, M.D., Ph.D. Dr. Rajkovic has served on our board of directors since February 2022. Since May 2018, Dr. Rajkovic has served as Chief Genomics Officer and Director of the Genomic Medicine Initiative at University of California San Francisco ("UCSF"). Dr. Rajkovic also serves as Medical Director and Chief of the Center for Genetic and Genomic Medicine for the UCSF Health System, serves as the Stuart Lindsay Distinguished Professor in Experimental Pathology at UCSF, serves on the board of directors for the American College of Medical Genetics Foundation, since April 2020, and on the scientific advisory board of Allelica, a private genomics software company, since February 2022. From July 2009 to May 2018, Dr. Rajkovic served as the Marcus Allen Hogge Chair in Reproductive Sciences and director of reproductive genetics at the Magee-Womens Hospital at University of Pittsburgh Medical Center. Dr. Rajkovic holds a B.S. in Chemistry from Johns Hopkins University and an M.D. and Ph.D. in Molecular Biology from Case Western Reserve University.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Rajkovic's extensive experience in the clinical application of genetic and genomic testing qualifies him to serve as a member of our Board.

CLASS I DIRECTORS CONTINUING IN OFFICE UNTIL THE 2025 ANNUAL MEETING

R. Erik Holmlin, Ph.D. Dr. Holmlin has served as our President and Chief Executive Officer and as a member of our board of directors since January 2011. Dr. Holmlin has also served as a member of the board of directors of Innovatus Life Sciences Acquisition Corp, a blank check company seeking to effect a business combination with one or more businesses, since March 2021. From June 2010 to February 2011, Dr. Holmlin served as president and Chief Executive Officer of GenVault Corporation, a private biosample management solutions company. Previously, Dr. Holmlin held positions as an entrepreneur in residence at Domain Associates, LLC, a dedicated life sciences venture capital firm; Chief Commercial Officer of Exiqon A/S, a publicly traded RNA research solutions company; founder and executive at GeneOhm Sciences, Inc., which was acquired by Becton, Dickinson and Company; and a National Institutes of Health postdoctoral fellow at Harvard University. Dr. Holmlin received his B.S. in Chemistry from Occidental College, his Ph.D. in Chemistry from the California Institute of Technology and MBAs from University of California, Berkeley and Columbia University.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Holmlin's over 18 years of experience in the life sciences and healthcare industries, which includes the areas of technology development, product commercialization and venture financing, qualifies him to serve on our board of directors.

David L. Barker, Ph.D. Dr. Barker has served on our board of directors since May 2010, and as Chairman of our board of directors since August 2016. Dr. Barker has also served as a member of the board of directors of AmideBio, LLC, a private biotechnology company, since August 2011, and of Singular Genomics Systems, Inc., a public life science technology company, since June 2016. He has also served as a scientific advisor to LunaPBC, a public benefit corporation, since November 2017. Dr. Barker previously served as a member of the board of directors of Aspen Neuroscience, a private cell therapy company, from October 2018 to May 2021, IntegenX, Inc., a private DNA testing technology company, from June 2006 to March 2018 (when it was acquired by Thermo Fisher Scientific), and of Integrated Diagnostics, Inc., a private molecular diagnostics company, from October 2009 to August 2018 (when it was acquired by Biodesix, Inc.). He served as Vice President and Chief Scientific Officer at Illumina, Inc. ("Illumina") from 2000 to 2007, and on the Illumina scientific advisory board until May 2016. Dr. Barker was previously a member of the board of directors of NextBio, Inc. (acquired by Illumina in 2013), ProteinSimple, Inc. (acquired by Bio-Techne Corporation ("BT") in 2014) and Zephyrus Biosciences, Inc. (acquired by BT in 2016). Dr. Barker served from 1998 to 2000 as Vice President and Chief Science Advisor at Amersham Biosciences, now part of GE Healthcare. From 1988 to 1998, Dr. Barker held senior positions, including Vice President of Research and Business Development, at Molecular Dynamics, Inc., until the acquisition of Molecular Dynamics by Amersham. In his academic career, Dr. Barker conducted interdisciplinary research in neurobiology as a postdoctoral fellow at Harvard Medical School, Assistant Professor at the University of Oregon and Associate Professor at Oregon State University. Dr. Barker holds a B.S. with honors in Chemistry from the California Institute of Technology and a Ph.D. in Biochemistry from Brandeis University.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Barker's extensive experience in managing and leading early stage and established companies within the clinical diagnostic and biotechnology industries qualifies him to serve as a member of our Board.

Vincent J. Wong, J.D., M.B.A. Mr. Wong has served on our board of directors since December 2021. Since March 2021, Mr. Wong has served as Chief Commercial Officer at Geneoscopy, Inc., a private company developing diagnostic tests for gastrointestinal health. Mr. Wong has also served as an Executive in Residence at IU Ventures, an affiliate of Indiana University advising portfolio start-up companies, since March 2021. From April 2005 to December 2020, Mr. Wong served in various leadership roles at Roche Diagnostics Corporation, the diagnostics division of Roche Holding AG and its affiliated entities, including as Vice President of Sales, Point of Care Diagnostics, Vice President, Physician Office and Specialty Diagnostics, and Vice President, Strategy and Communications. Mr. Wong holds a B.A. in Economics and Government from the University of Notre Dame, a J.D. from Indiana University Maurer School of Law and an MBA from Northwestern University's Kellogg School of Management.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Wong's extensive experience in leadership roles in the diagnostics industry qualifies him to serve as a member of our Board.

**INFORMATION REGARDING
THE BOARD OF DIRECTORS AND CORPORATE GOVERNANCE**

INDEPENDENCE OF THE BOARD OF DIRECTORS

Under the listing requirements and rules of the Nasdaq Stock Market (“Nasdaq”), independent directors must comprise a majority of our board of directors. In addition, the rules of Nasdaq require that, subject to specified exceptions, each member of a listed company’s audit, compensation and nominating and corporate governance committees be independent. Under the rules of the Nasdaq, a director will only qualify as an “independent director” if, in the opinion of that 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. Compensation Committee members must not have a relationship with us that is material to the director’s ability to be independent from management in connection with the duties of a Compensation Committee member. Additionally, Audit Committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act. 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 of 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 be an affiliated person of the listed company or any of its subsidiaries.

Our Board has undertaken a review of the independence of the directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning such director’s background, employment and affiliations, including family relationships, our board of directors determined that each of Dr. Barker, Mr. Wong, Dr. Luderer, Dr. Vuori, Ms. Mamuszka, Mr. Twomey, Dr. Linney and Dr. Rajkovic, representing eight of our nine directors, are “independent directors” as defined under current rules and regulations of the SEC and the listing standards of Nasdaq. In making these determinations, our Board considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances that our Board deemed relevant in determining their independence.

BOARD DIVERSITY

The Board Diversity Matrix below provides certain self-identified information regarding the composition of the Board. Each of the categories listed in the below table has the meaning as it is used in Nasdaq Rule 5605(f) and related instructions.

| Board Diversity Matrix (As of the Record Date) | | | | |
|-------------------------------------------------------|--------|------|------------|-------------------------|
| Total Number of Directors | 9 | | | |
| | Female | Male | Non-Binary | Did Not Disclose Gender |
| Part I: Gender Identity | | | | |
| Directors | 3 | 6 | — | — |
| Part II: Demographic Background | | | | |
| African American or Black | — | — | — | — |
| Alaskan Native or Native American | — | — | — | — |
| Asian | — | 1 | — | — |
| Hispanic or Latinx | — | 1 | — | — |
| Native Hawaiian or Pacific Islander | — | — | — | — |
| White | 3 | 3 | — | — |
| Two or More Races or Ethnicities | — | — | — | — |
| LGBTQ+ | — | | | |
| Did Not Disclose Demographic Background | 1 | | | |

BOARD LEADERSHIP STRUCTURE

The Board has an independent Chairman, Dr. Barker, who has authority, among other things, to call and preside over Board meetings, including meetings of the independent directors, to set meeting agendas and to determine materials to be distributed to the Board. Accordingly, the Chairman has substantial ability to shape the work of the Board. We believe that separation of the positions of Chairman and Chief Executive Officer reinforces the independence of the Board in its oversight of our business and affairs. In addition, we have a separate chair for each committee of the Board. The chair of each committee is expected to report annually to our Board on the activities of their committee in fulfilling their responsibilities as detailed in their respective charters or specify any shortcomings should that be the case. In addition, we believe that having an independent Chairman creates an environment that is more conducive to objective evaluation and oversight of management's performance, increasing management accountability and improving the ability of the Board to monitor whether management's actions are in the best interests of us and our stockholders. As a result, we believe that having an independent Board Chairman can enhance the effectiveness of the Board as a whole.

CHIEF EXECUTIVE OFFICER SUCCESSION AND BOARD REFRESHMENT

Under the charter of the Nominating and Corporate Governance Committee, the Nominating and Corporate Governance Committee is responsible for reviewing and recommending to the Board changes as needed to the Company's corporate governance principles, including items such as management succession, policies and principles for management selection and performance review, policies regarding succession in the event of an emergency or departure of our Chief Executive Officer, and Board diversity, tenure and refreshment. Our Board has adopted an emergency succession plan in the event of the sudden departure of our Chief Executive Officer and our Nominating and Corporate Governance Committee reviews it with our management annually. Our corporate governance principles provide, among other things, that our Compensation Committee is to conduct an annual review of the performance of our Chief Executive Officer. Our Nominating and Corporate Governance Committee and the Board seek to achieve a balance of Board director tenures in order to benefit from long-tenured directors' institutional knowledge and newly elected directors' fresh perspective and, towards this goal, monitors director tenure carefully. The Board believes an effective refreshment program must be continuous and ongoing as discussed below in "Information Regarding Committees of the Board of Directors—Nominating and Corporate Governance Committee."

ROLE OF THE BOARD IN RISK OVERSIGHT

Risk is inherent with every business, and we face a number of risks, including strategic, financial, business and operational, legal and compliance, cybersecurity and reputational. One of the key functions of our Board is informed oversight of our risk management process. Our Board does not have a standing risk management committee, but rather administers this oversight function directly through the Board as a whole, as well as through various standing committees of the Board that address risks inherent in their respective areas of oversight. In particular, our Board is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the Company. Our Audit Committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The Audit Committee also monitors compliance with legal and regulatory requirements, in addition to oversight of the performance of our internal audit function. Our Nominating and Corporate Governance Committee monitors the effectiveness of our corporate governance guidelines, including whether they are successful in preventing illegal or improper liability-creating conduct. Our Compensation Committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking. It is the responsibility of the committee chairs to report findings regarding material risk exposures to the Board as quickly as possible. The Chairman coordinates between the Board and management with regard to the determination and implementation of responses to any problematic risk management issues.

MEETINGS OF THE BOARD OF DIRECTORS

The Board met seven times during the last fiscal year. Each Board member attended 75% or more of the aggregate number of meetings of the Board and the committees on which he or she served, that were held in 2022 during the period in which he or she served on our Board or their respective committees of our Board.

As required under the Nasdaq listing standards, in 2022, our independent directors met 5 times in regularly scheduled executive sessions at which only independent directors were present.

INFORMATION REGARDING COMMITTEES OF THE BOARD OF DIRECTORS

The Board has four standing committees: an Audit Committee; a Compensation Committee; a Nominating and Corporate Governance Committee; and a Science and Technology Committee. The following table provides membership and meeting information for fiscal year 2022 for each of these committees of the Board:

| Name | Audit | Compensation | Nominating and Corporate Governance | Science and Technology |
|----------------------------------------|-------|--------------|-------------------------------------|------------------------|
| R. Erik Holmlin, Ph.D. | | | | |
| David L. Barker, Ph.D. | | X* | | X* |
| Yvonne Linney, Ph.D. | | | X | |
| Albert Luderer, Ph.D. | X | | X* | X |
| Hannah Mamuszka | | X | | |
| Christopher Twomey | X* | | | |
| Kristiina Vuori, M.D., Ph.D. | | X | X | X |
| Vincent J. Wong, J.D., M.B.A. | X | | | |
| Aleksandar Rajkovic, M.D., Ph.D. | | | | X |
| Number of meetings in fiscal year 2022 | 4 | 4 | 5 | 3 |

* Committee Chairperson

Below is a description of each committee of the Board.

Each of the committees has authority to engage legal counsel or other experts or consultants, as it deems appropriate to carry out its responsibilities. The Board has determined that each member of each committee meets the applicable Nasdaq rules and regulations regarding “independence” and each member is free of any relationship that would impair his or her individual exercise of independent judgment with regard to the Company.

Audit Committee

The Audit Committee was established by the Board in accordance with Section 3(a)(58)(A) of the Exchange Act to oversee the Company’s corporate accounting and financial reporting processes and audits of its financial statements. For this purpose, the Audit Committee performs several functions. The primary purpose of the Audit Committee is to discharge the responsibilities of the Board with respect to the Company’s corporate accounting and financial reporting processes, systems of internal control over financial reporting and financial-statement audits, as well as overseeing the Company’s independent registered accounting firm. Specific responsibilities of the Audit Committee include, among other things:

- helping the Board oversee the Company’s corporate accounting and financial reporting processes;
- managing the selection, engagement, qualifications, independence and performance of a qualified firm to serve as the independent registered public accounting firm to audit the Company’s financial statements;
- discussing the scope and results of the audit with the independent registered public accounting firm, and reviewing, with management and the independent accountants, our interim and year-end operating results;
- developing procedures for employees to submit concerns anonymously about questionable accounting or audit matters;
- reviewing related person transactions;
- obtaining and reviewing a report by the independent registered public accounting firm at least annually, that describes our internal quality control procedures, any material issues with such procedures, and any steps taken to deal with such issues when required by applicable law;

- approving, or, as permitted, pre-approving, audit and permissible non-audit services to be performed by the independent registered public accounting firm;
- reviewing and discussing with our management and our auditors, as appropriate, our guidelines and policies with respect to risk assessment and risk management, including our major financial risk exposures and the steps taken by management to identify, monitor and control exposures to strategic, financial, operational, regulatory and other risks inherent in our business; and
- reviewing reports from management and our auditors regarding the adequacy and effectiveness of our procedures to monitor and ensure compliance with our legal and regulatory responsibilities, including our disclosure controls and procedures, as well as our Code of Business Conduct and Ethics, and regarding legal matters and compliance with legal and regulatory requirements that may have a material effect on our business, financial statements or compliance policies, including any material reports or inquiries from regulatory or governmental agencies.

The Audit Committee is currently composed of three directors: Mr. Twomey, Dr. Luderer and Mr. Wong. The Board has adopted a written Audit Committee charter that is available to stockholders on the Company’s website at www.bionano.com. The information on our website is not incorporated by reference into this proxy statement or the Annual Report.

The Board reviews the Nasdaq listing standards definition of independence for Audit Committee members on an annual basis and has determined that all members of the Company’s Audit Committee are independent (as independence is currently defined in Rule 5605(c)(2)(A)(i) and (ii) of the Nasdaq listing standards and Rule 10A-3(b)(1) of the Exchange Act).

Each member of the Audit Committee can read and understand fundamental financial statements in accordance with applicable requirements. In arriving at these determinations, the Board has examined each Audit Committee member’s scope of experience and the nature of their employment in the corporate finance sector.

The chair of the Audit Committee is Mr. Twomey, who the Board has determined qualifies as an “audit committee financial expert” as defined in applicable SEC rules. The Board made a qualitative assessment of Mr. Twomey’s level of knowledge and experience based on a number of factors, including his formal education, prior experience, business acumen and independence. In addition to the Company’s Audit Committee, Mr. Twomey also serves on the Audit Committee of Tandem Diabetes Care, Inc. The Board has determined that this simultaneous service does not impair Mr. Twomey’s ability to effectively serve on the Audit Committee.

Report of the Audit Committee of the Board of Directors*

The Audit Committee has reviewed and discussed the audited financial statements for the fiscal year ended December 31, 2022 with management of the Company. The Audit Committee has discussed with the independent registered public accounting firm the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board (“PCAOB”) and the SEC. The Audit Committee has also received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding the independent registered accounting firm’s communications with the Audit Committee concerning independence, and has discussed with the independent registered public accounting firm the accounting firm’s independence. Based on the foregoing, the Audit Committee has recommended to the Board that the audited financial statements be included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2022.

Mr. Twomey, Chair
 Dr. Luderer
 Mr. Wong

* *The material in this report is not “soliciting material,” is not deemed “filed” with the SEC and is not to be incorporated by reference in any filing of the Company under the Exchange Act or the Securities Act of 1933, as amended (the “Securities Act”), whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.*

Compensation Committee

The Compensation Committee is currently composed of three directors: Dr. Barker, Dr. Vuori and Ms. Mamuszka. The Board has determined that each member of the Compensation Committee is independent as

defined in Rule 5605(d)(2) of the Nasdaq listing standards and a “non-employee director” as defined in Rule 16b-3 promulgated under the Exchange Act. The Board has adopted a written Compensation Committee charter that is available to stockholders on the Company’s website at www.bionano.com. The information on our website is not incorporated by reference into this proxy statement or the Annual Report.

The Compensation Committee acts on behalf of the Board to review, adopt or recommend to the Board for adoption and oversee the Company’s compensation strategy, policies, plans and programs and to review and determine the compensation to be paid to our executive officers, directors and other senior management, as appropriate. Specific responsibilities of the Compensation Committee include, among other things:

- reviewing and approving the compensation of our chief executive officer, other executive officers and senior management;
- reviewing and recommending to the Board the compensation paid to our directors;
- reviewing and approving the compensation arrangements with our executive officers and other senior management;
- administering our equity incentive plans and other benefit programs;
- reviewing, adopting, amending and terminating, incentive compensation and equity plans, severance agreements, profit sharing plans, bonus plans, change-of-control protections and any other compensatory arrangements for our executive officers and other senior management; and
- reviewing and establishing general policies relating to compensation and benefits of our employees, including our overall compensation philosophy.

Compensation Committee Processes and Procedures

Typically, the Compensation Committee meets at least twice per year and with greater frequency if necessary. The agenda for each meeting is usually developed by the Chair of the Compensation Committee, in consultation with management. The Compensation Committee meets regularly in executive session. However, from time to time, various members of management and other employees as well as outside advisors or consultants may be invited by the Compensation Committee to make presentations, to provide financial or other background information or advice or to otherwise participate in Compensation Committee meetings. The Chief Executive Officer does not participate in and is not present during any deliberations or determinations of the Compensation Committee regarding his compensation or individual performance objectives. The charter of the Compensation Committee grants the Compensation Committee full access to all books, records, facilities and personnel of the Company. In addition, under its charter, the Compensation Committee has the authority to obtain, at the expense of the Company, advice and assistance from compensation consultants and internal and external legal, accounting or other advisors and other external resources that the Compensation Committee considers necessary or appropriate in the performance of its duties. The Compensation Committee has direct responsibility for the oversight of the work of any consultants or advisers engaged for the purpose of advising the Compensation Committee. In particular, the Compensation Committee has the sole authority to retain, in its sole discretion, compensation consultants to assist in its evaluation of executive and director compensation, including the authority to approve the consultant’s reasonable fees and other retention terms. Under its charter, to the extent required by the SEC and Nasdaq rules, the Compensation Committee may select, or receive advice from, a compensation consultant, legal counsel or other adviser to the Compensation Committee, other than in-house legal counsel and certain other types of advisers, only after taking into consideration six factors, prescribed by the SEC and Nasdaq, that bear upon the adviser’s independence; however, there is no requirement that any adviser be independent.

The Compensation Committee retains an independent executive compensation consultant to assist in evaluating our compensation programs. Until June 2022, Aon/Radford served as our compensation consultant, primarily with respect to our 2022 compensation program. In June 2022, after taking into consideration the six factors prescribed by the SEC and Nasdaq discussed above, the Compensation Committee engaged Pearl Meyer as its compensation consultant with respect to our 2023 compensation program. Our Compensation Committee identified Pearl Meyer based on Pearl Meyer’s general reputation in the industry and experience providing similar services to companies similar to Bionano. The Compensation Committee requested that each of Aon/Radford and Pearl Meyer, with respect to our 2022 and 2023 compensation programs, respectively:

- evaluate the efficacy of the Company’s compensation strategy and practices in supporting and reinforcing the Company’s long-term strategic goals;
- assist in refining the Company’s compensation strategy and in developing and implementing an executive compensation program to execute that strategy;
- develop a comparative group of companies and perform analyses of competitive performance and compensation levels for that group; and
- examine competitiveness of equity compensation and retention value of the equity program.

At the request of the Compensation Committee, in 2022 Pearl Meyer also conducted individual interviews with members of the Compensation Committee and management to learn more about the Company’s business operations and strategy, key performance metrics and strategic goals, as well as the labor markets in which the Company competes. Pearl Meyer ultimately developed recommendations for our 2023 compensation program that were presented to the Compensation Committee for its consideration.

Under its charter, our Compensation Committee may form, and delegate authority to, subcommittees as appropriate. Our Compensation Committee approved the formation of an equity incentive subcommittee of the Compensation Committee, currently composed of R. Erik Holmlin, Ph.D., our Chief Executive Officer, to which authority has been delegated to grant, without any further action required by the Compensation Committee, stock options and time-based restricted stock unit (“RSU”) awards to employees who are not our officers, within specified limits approved by our Compensation Committee. The purpose of this delegation of authority is to enhance the flexibility of equity award administration and to facilitate the timely grant of equity awards to non-management employees, particularly new employees, within specified limits approved by our Compensation Committee. In particular, the subcommittee may grant options or RSU awards only within pre-approved guidelines. Typically, as part of its oversight function, our Compensation Committee will review on a regular basis the list of grants made by the subcommittee. During the years ended December 31, 2022 and 2021, the subcommittee exercised its authority to grant equity awards covering a total of 9,871,450 shares and 6,295,739 shares, respectively, to non-officer employees.

The Compensation Committee holds one or more meetings during the first quarter of the year to discuss and make recommendations to the Board for annual compensation adjustments, annual bonuses, annual equity awards, and current year corporate performance objectives. However, the Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of the Company’s compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee’s process comprises two related elements: the determination of compensation levels and the establishment of performance objectives for the current year. For executives other than the Chief Executive Officer, the Compensation Committee solicits and considers evaluations and recommendations submitted to the Compensation Committee by the Chief Executive Officer. In the case of the Chief Executive Officer, the evaluation of his performance is conducted by the Compensation Committee, which determines recommendations to the Board regarding any adjustments to his compensation as well as equity awards to be granted. For all executives and directors as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels and current Company-wide compensation levels, compensation data from comparative companies, compensation surveys, and recommendations of any compensation consultant, if applicable.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee is responsible for identifying, reviewing and evaluating candidates to serve as directors of the Company (consistent with criteria approved by the Board), reviewing and evaluating incumbent directors, selecting or recommending to the Board for selection candidates for election to the Board, making recommendations to the Board regarding the membership of the committees of the Board, assessing the performance of the Board, and developing a set of corporate governance principles for the Company.

The Nominating and Corporate Governance Committee is currently composed of three directors: Dr. Luderer, Dr. Vuori and Dr. Linney. Each member of the Nominating and Corporate Governance Committee is independent as defined in Rule 5605(a)(2) of the Nasdaq listing standards, a non-employee director and free from any relationship that would interfere with the exercise of his independent judgment. The Board has adopted a written Nominating and Corporate Governance Committee charter that is available to stockholders on the Company's website at www.bionano.com. The information on our website is not incorporated by reference into this proxy statement or the Annual Report.

The responsibilities of the Nominating and Corporate Governance Committee include, among other things:

- identifying and evaluating candidates, including the nomination of incumbent directors for reelection and nominees recommended by stockholders, to serve on the Board;
- considering and making recommendations to the Board regarding the composition and chairmanship of the committees of the Board, taking into account such factors as experience, skills and expertise;
- instituting plans or programs for the continuing education of the Board and orientation of new directors;
- developing and making recommendations to the Board regarding corporate governance guidelines and matters; and
- overseeing periodic evaluations of the Board's performance, including committees of the Board and management.

The Nominating and Corporate Governance Committee believes that candidates for director should have certain minimum qualifications, including the ability to read and understand basic financial statements, being over 21 years of age and having the highest personal integrity and ethics. The Nominating and Corporate Governance Committee also intends to consider such factors as possessing relevant expertise upon which to be able to offer advice and guidance to management, having sufficient time to devote to the affairs of the Company, demonstrated excellence in his or her field, having the ability to exercise sound business judgment and having the commitment to rigorously represent the long-term interests of the Company's stockholders. However, the Nominating and Corporate Governance Committee retains the right to modify these qualifications from time to time. Candidates for director nominees are reviewed in the context of the current composition of the Board, the operating requirements of the Company and the long-term interests of stockholders. In conducting this assessment, the Nominating and Corporate Governance Committee typically considers diversity (including gender, racial and ethnic diversity), age, skills and such other factors as it deems appropriate, given the current needs of the Board and the Company, to maintain a balance of knowledge, experience and capability.

The Nominating and Corporate Governance Committee appreciates the value of thoughtful Board refreshment, and regularly identifies and considers qualities, skills and other director attributes that would enhance the composition of the Board. In the case of incumbent directors whose terms of office are set to expire, the Nominating and Corporate Governance Committee reviews these directors' overall service to the Company during their terms, including the number of meetings attended, level of participation, quality of performance and any other relationships and transactions that might impair the directors' independence. The Nominating and Corporate Governance Committee also takes into account the results of the Board's self-evaluation, conducted annually on a group and individual basis. In the case of new director candidates, the Nominating and Corporate Governance Committee also determines whether the nominee is independent for Nasdaq purposes, which determination is based upon applicable Nasdaq listing standards, applicable SEC rules and regulations and the advice of counsel, if necessary. The Nominating and Corporate Governance Committee then uses its network of contacts to compile a list of potential candidates, but may also engage, if it deems appropriate, a professional search firm. The Nominating and Corporate Governance Committee conducts any appropriate and necessary inquiries into the backgrounds and qualifications of possible candidates after considering the function and needs of the Board. The Nominating and Corporate Governance Committee meets to discuss and consider the candidates' qualifications and then selects candidates for recommendation to the Board by majority vote.

Our Nominating and Corporate Governance Committee does not have a formal policy regarding board diversity. Diversity is one of a number of factors, however, that the committee takes into account in identifying nominees, and the Nominating and Corporate Governance Committee believes that it is essential that the board members represent diverse viewpoints. To accomplish the Board's diversity objectives, the Nominating and

Corporate Governance Committee may retain an executive search firm to help identify potential directors that meet these objectives. In fiscal year 2022, the Nominating and Corporate Governance Committee paid a fee to \$26,667 to assist in the process of identifying or evaluating director candidates.

The Nominating and Corporate Governance Committee will consider director candidates recommended by stockholders. The Nominating and Corporate Governance Committee does not intend to alter the manner in which it evaluates candidates, including the minimum criteria set forth above, based on whether or not the candidate was recommended by a stockholder. Stockholders who wish to recommend individuals for consideration by the Nominating and Corporate Governance Committee to become nominees for election to the Board may do so by delivering a written recommendation to the Nominating and Corporate Governance Committee at the following address: Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121, 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 first anniversary of the preceding year's annual meeting of stockholders. Submissions must include the full name of the proposed nominee, a description of the proposed nominee's business experience for at least the previous five years, complete biographical information, a description of the proposed nominee's qualifications as a director and a representation that the nominating stockholder is a beneficial or record holder of the Company's stock and has been a holder for at least one year. Any such submission must be accompanied by the written consent of the proposed nominee to be named as a nominee and to serve as a director if elected.

Science and Technology Committee

The Science and Technology Committee of the Board is responsible for overseeing matters relating to our scientific and technologic capabilities and development programs and monitoring and evaluating significant emerging trends and issues in science and technology relevant to us. The Science and Technology Committee is currently composed of four directors: Dr. Barker, Dr. Luderer, Dr. Vuori and Dr. Rajkovic.

The responsibilities of the Science and Technology Committee include, among other things:

- assisting management in developing insights and recommendations for product development and technical innovation;
- recommending external advisors for our use of science and technology;
- assisting management in identifying, evaluating and overseeing technology and product development investments;
- reviewing and overseeing our innovation strategy; and
- overseeing our clinical development strategy and reviewing our intellectual property portfolio.

CORPORATE SOCIAL RESPONSIBILITY

We are focused on elevating the health and wellness of all people through our products and services, as well as our Environmental, Social, and Governance ("ESG") initiatives. We believe that ESG practices and sustainable long-term value creation for our stockholders are intertwined, and have committed to advancing an ESG framework that aligns with our culture and what we believe creates value for our investors. For more information about our ESG efforts please visit <https://ir.bionano.com/responsibility>. The information on our website is not incorporated by reference into this proxy statement or the Annual Report.

STOCKHOLDER ENGAGEMENT AND COMMUNICATIONS WITH THE BOARD OF DIRECTORS

We consider our relationships with our stockholders to be a high priority. We recognize that stockholders can have divergent interests and different views on our practices, objectives and time horizons. To ensure that the Board and management have an opportunity to listen to and understand the varying perspectives of our stockholders, we engage in ongoing dialogues with stockholders through our stockholder engagement efforts. In 2022, members of management reached out to four of our largest stockholders, including stockholders collectively representing approximately 15% of the outstanding shares. Two such stockholders acknowledged our efforts but declined to meet with us, and we ultimately had constructive conversations with the other two, with one such stockholder also meeting with the Chair of the Board and of our Compensation Committee. Topics

discussed included, among other things, corporate governance (including Board member skills, experience and attributes), executive compensation, business strategy and environmental and other issues related to corporate social responsibility. As a result of these discussions, we gained understanding and insight into the views of these stockholders.

The Board has adopted a formal process by which stockholders may communicate with the Board or any of its directors. Stockholders who wish to communicate with the Board may do so by sending written communications addressed to: Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121. These communications will be reviewed by the Secretary of Bionano, who will determine whether the communication is appropriate for presentation to the Board or the relevant director. The purpose of this screening is to allow the Board to avoid having to consider irrelevant or inappropriate communications (such as advertisements, solicitations and hostile communications). The screening procedures have been approved by a majority of the independent directors. All communications directed to the Audit Committee in accordance with our Open Door Policy for Reporting Complaints Regarding Accounting and Auditing Matters that relate to questionable accounting or auditing matters will be promptly and directly forwarded to the Audit Committee.

CODE OF ETHICS

We have adopted a Code of Business Conduct and Ethics that applies to all of our employees, officers and directors. This includes our principal executive officer, principal financial officer and principal accounting officer or controller, or persons performing similar functions. The Code of Business Conduct and Ethics is available on the Company's website at www.bionano.com. The information on our website is not incorporated by reference into this proxy statement or the Annual Report. If we ever were to amend or waive any provision of our Code of Business Conduct and Ethics that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, or any person performing similar functions, we intend to satisfy our disclosure obligations, if any, with respect to any such waiver or amendment by posting such information on our website set forth above rather than by filing a Current Report on Form 8-K.

HEDGING POLICY*

As part of our insider trading policy, no officer, director, other employee or consultant may engage in short sales, transactions in put or call options, hedging transactions or other inherently speculative transactions with respect to our common stock at any time. In addition, no officer, director, other employee or consultant may margin, or make any offer to margin, any of our common stock, including without limitation, borrowing against such stock, at any time.

* *The disclosure under the caption "Hedging Policy" is not to be incorporated by reference in any filing of the Company under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.*

PROPOSAL 2
ADVISORY VOTE ON EXECUTIVE COMPENSATION

At the 2022 Annual Meeting of Stockholders, the stockholders indicated their preference that we solicit a non-binding advisory vote on the compensation of the named executive officers, commonly referred to as a “say-on-pay vote,” every year. The Board has adopted a policy that is consistent with that preference. In accordance with that policy, this year, we are again asking the stockholders to approve, on an advisory basis, the compensation of our named executive officers as disclosed in this proxy statement in accordance with SEC rules.

This vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and the philosophy, policies and practices described in this proxy statement. The compensation of our named executive officers subject to the vote is disclosed in the compensation tables and the related narrative disclosure contained in this proxy statement. As discussed in those disclosures, we believe that our compensation policies and decisions are consistent with current market practices. Compensation of our named executive officers is designed to enable us to attract and retain talented and experienced executives to lead us successfully in a competitive environment. Please also refer to “Information Regarding the Board of Directors and Corporate Governance—Stockholder Engagement and Communications with the Board of Directors” for a discussion of our engagement with stockholders following the last year’s vote by our stockholders regarding the compensation of our named executive officers.

Accordingly, the Board is asking the stockholders to indicate their support for the compensation of our named executive officers as described in this proxy statement by casting a non-binding advisory vote “For” the following resolution:

“RESOLVED, that the compensation paid to Bionano’s named executive officers, as disclosed pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the compensation tables and any related material disclosed in this proxy statement, is hereby APPROVED.”

Because the vote is advisory, it is not binding on the Board or us. Nevertheless, the views expressed by our stockholders, whether through this vote or otherwise, are important to management and the Board and, accordingly, the Board and the Compensation Committee intend to consider the results of this vote in making determinations in the future regarding executive compensation arrangements.

Advisory approval of this proposal requires “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting. The Series A Preferred Stock is not entitled to vote on this proposal. Abstentions will be counted towards the vote total and will have the same effect as “Against” votes for this proposal. We believe that broker non-votes will be counted towards the presence of a quorum but will have no effect and will not be counted towards the vote total for this proposal because we have been advised by NYSE that this proposal should be considered “non-routine” under NYSE rules, and accordingly, we believe that your broker may not vote your shares on this proposal without instructions from you. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

Unless the Board decides to modify its policy regarding the frequency of soliciting advisory votes on the compensation of our named executives, the next scheduled say-on-pay vote will be at the 2024 Annual Meeting of Stockholders. We anticipate that our next advisory vote on the preferred frequency of stockholder advisory votes on the compensation of our named executive officers will occur at the 2028 Annual Meeting of Stockholders in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act and Section 14A of the Exchange Act, unless the Board determines to hold such advisory vote at an earlier meeting.

THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” PROPOSAL 2.

PROPOSAL 3
RATIFICATION OF SELECTION OF
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee has selected BDO USA, LLP to serve as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2023 and our Board has further directed that management submit the Audit Committee’s selection of BDO USA, LLP as the Company’s independent registered public accounting firm for ratification by the stockholders at the Annual Meeting. Representatives of BDO USA, LLP are expected to be present by virtual attendance at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

Neither the Company’s Bylaws nor other governing documents or law require stockholder ratification of the selection of BDO USA, LLP as the Company’s independent registered public accounting firm. However, the Audit Committee is submitting the selection of BDO USA, LLP to the stockholders for ratification as a matter of good corporate practice. If the stockholders fail to ratify the selection, the Audit Committee will reconsider whether or not to retain that firm. Even if the selection is ratified, the Audit Committee in its discretion may direct the appointment of different independent auditors at any time during the year if they determine that such a change would be in the best interests of the Company and its stockholders.

Vote Required

Approval of this proposal requires “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting. The Series A Preferred Stock is not entitled to vote on this proposal. Abstentions will be counted towards the vote total and will have the same effect as “Against” votes for this proposal. We do not anticipate broker non-votes for this proposal because we have been advised by NYSE that this proposal should be considered “routine” under NYSE rules, and accordingly, we believe that your broker may vote your shares on this proposal without instructions from you; however, to the extent there are broker non-votes for this proposal, we believe such broker non-votes will have no effect because they are not considered entitled to vote on this proposal under Delaware law. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table summarizes the aggregate fees billed to the Company by BDO USA, LLP for the fiscal years ended December 31, 2022 and 2021.

| | 2022 | 2021 |
|-----------------------------------|------------------|------------------|
| Audit fees ⁽¹⁾ | \$726,775 | \$888,296 |
| Audit-related fees ⁽²⁾ | — | — |
| Tax fees ⁽³⁾ | — | \$ 16,000 |
| All other fees | — | — |
| Total | \$726,775 | \$904,296 |

- (1) Audit fees consist of fees billed for professional services rendered for the audit of the consolidated annual financial statements of the Company, review of the interim condensed consolidated financial statements included in quarterly reports, review of SEC-filings, and services that are normally provided in connection with statutory and regulatory filings or engagements.
- (2) Audit-related fees consist of fees billed for assurance and related services that are reasonably related to the performance of the audit or review of the consolidated financial statements of the Company and are not reported under “Audit fees.”
- (3) Tax fees consist of fees billed for professional services rendered for tax compliance, advice and planning. For the fiscal years ended December 31, 2021, these services included assistance regarding federal and state tax compliance and consultations regarding various income tax issues.

During the fiscal years ended December 31, 2022 and 2021, all of the total hours expended on our financial audit by BDO USA, LLP were provided by BDO USA, LLP's full-time permanent employees.

PRE-APPROVAL POLICIES AND PROCEDURES

In considering the nature of the services provided by BDO USA, LLP, the Audit Committee determined that such services were compatible with the provision of independent audit services.

The Audit Committee discussed these services with BDO USA, LLP and management to determine that they were permitted under the rules and regulations concerning auditor independence promulgated by the SEC to implement the Sarbanes-Oxley Act of 2002, as well as the Public Company Accounting Oversight Board. The Audit Committee required that all services performed by BDO USA, LLP be pre-approved prior to the services being performed. During the fiscal years ended December 31, 2022 and 2021, all services by BDO USA, LLP, respectively, were pre-approved in accordance with these procedures, and the Audit Committee continues to require that all services performed by BDO USA, LLP be pre-approved in accordance with these procedures prior to the services being performed.

**THE BOARD OF DIRECTORS RECOMMENDS
A VOTE "FOR" PROPOSAL 3.**

PROPOSAL 4
REVERSE STOCK SPLIT PROPOSAL

General

Our Board has unanimously approved a series of alternate amendments to our Amended and Restated Certificate of Incorporation, as amended, each of which would effect a reverse stock split (a “Reverse Stock Split”) of all issued and outstanding shares of our common stock at a ratio ranging from 1-for-5 to 1-for-10, inclusive.

Accordingly, effecting a Reverse Stock Split would reduce the number of outstanding shares of our common stock. The effectiveness of any one of these amendments and the abandonment of the other amendments, or the abandonment of all of these amendments, will be determined by our Board following the Annual Meeting and on or prior to the one-year anniversary of the date each Reverse Stock Split is approved by our stockholders. Our Board has recommended that these proposed amendments be presented to our stockholders for approval.

Our stockholders are being asked to approve these proposed amendments pursuant to Proposal 4, and to grant authorization to our Board to determine, at its option, whether to implement a Reverse Stock Split, including its specific timing and ratio. Should we receive the required stockholder approval for Proposal 4, our Board will have the sole authority to elect, at any time on or prior to the one-year anniversary of the date each Reverse Stock Split is approved by our stockholders, and without the need for any further action on the part of our stockholders whether to effect a Reverse Stock Split.

Notwithstanding approval of Proposal 4 by our stockholders, our Board may, at its sole option, abandon the proposed amendments and determine prior to the effectiveness of any filing with the Secretary of State of the State of Delaware not to effect any Reverse Stock Split, as permitted under Section 242(c) of the General Corporation Law of the State of Delaware.

By approving Proposal 4, our stockholders will: (a) approve a series of alternate amendments to our Amended and Restated Certificate of Incorporation, as amended, pursuant to which any whole number of outstanding shares of common stock between and including 1-for-5 to 1-for-10 could be combined into one share of common stock; and (b) authorize our Board to file only one such amendment, as determined by the Board at its sole option, and to abandon each amendment not selected by the Board. Our Board may also elect not to undertake a Reverse Stock Split and therefore abandon all amendments.

The text of the proposed form of Certificate of Amendment to our Amended and Restated Certificate of Incorporation, as amended, which we refer to as the Certificate of Amendment, is attached hereto as **APPENDIX A**.

We are proposing that our Board have the discretion to select the Reverse Stock Split ratio from within a range between and including 1-for-5 to 1-for-10, rather than proposing that stockholders approve a specific ratio at this time, in order to give our Board the flexibility to implement a Reverse Stock Split at a ratio that reflects the Board’s then-current assessment of the factors described below under “—Criteria to be Used for Determining Whether to Implement a Reverse Stock Split.” If the Board decides to implement a Reverse Stock Split, we will file the Certificate of Amendment with the Secretary of State of the State of Delaware effecting the Board’s chosen Reverse Stock Split at the close of business on the business day following its filing with the Secretary of State of the State of Delaware, or such later time as is chosen by the Board and set forth in the Certificate of Amendment. Except for adjustments that may result from the treatment of fractional shares as described below, each of our stockholders will hold the same percentage of our outstanding common stock immediately following a Reverse Stock Split as such stockholder holds immediately prior to such Reverse Stock Split.

Reasons for a Reverse Stock Split

Potential improvement in the marketability and liquidity of our common stock. Our Board believes that the higher market price of our common stock expected as a result of implementing a Reverse Stock Split could improve the marketability and liquidity of our common stock and encourage interest and trading in our common stock, including by long-term investors who may not find our shares attractive at their current prices.

- *Stock Price Requirements:* We understand that many brokerage houses, institutional investors and funds have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers or by

restricting or limiting the ability to purchase such stocks on margin. Additionally, a Reverse Stock Split could help increase analyst and broker interest in our common stock as their internal policies might discourage them from following or recommending companies with low stock prices.

- *Stock Price Volatility*: Because of the trading volatility often associated with low-priced stocks, many brokerage houses and institutional investors have internal policies and practices that either prohibit them from investing in low-priced stocks or tend to discourage individual brokers from recommending low-priced stocks to their customers. Some of those policies and practices may make the processing of trades in low-priced stocks economically unattractive to brokers.
- *Transaction Costs*: Investors may be dissuaded from purchasing stocks below certain prices because brokers' commissions, as a percentage of the total transaction value, can be higher for low-priced stocks.

Compliance with Nasdaq listing requirements. Our common stock is listed on the Nasdaq Capital Market, which has as one of its continued listing requirements a minimum bid price of at least \$1.00 per share (the "Minimum Bid Price Requirement"). As of the Record Date, the closing price of our common stock on The Nasdaq Capital Market was \$0.78. If we were to fall out of compliance with the Minimum Bid Price Requirement and fail to regain compliance, our common stock could be subject to delisting from The Nasdaq Capital Market, which may cause a number of potential harms to us and our stockholders, including an adverse affect on the liquidity of our common stock, increased volatility in our common stock, the loss of current or future coverage by certain sell-side analysts and/or a diminution of institutional investor interest. Delisting could also cause a loss of confidence of our collaborators, vendors and employees, which could harm our business and future prospects. If our common stock was delisted by Nasdaq, our common stock could be eligible to trade on the OTC Bulletin Board, OTC-QB or another over-the-counter market. Any such alternative would likely result in it being more difficult for us to raise additional capital through the public or private sale of equity securities and for investors to dispose of or obtain accurate quotations as to the market value of our common stock. Moreover, if our common stock is delisted, it may come within the definition of "penny stock" under the Securities Exchange Act of 1934, as amended, which imposes additional sales practice requirements on broker-dealers who sell securities to persons other than established customers and accredited investors. These requirements may reduce trading activity in the secondary market for our common stock and may impact the ability or willingness of broker-dealers to sell our securities which could limit the ability of stockholders to sell their securities in the public market and limit our ability to attract and retain qualified employees or raise additional capital in the future.

A Reverse Stock Split would decrease the total number of shares of our common stock outstanding and should, absent other factors, proportionately increase the market price of our common stock above \$1.00 per share. Therefore, the Board believes that a Reverse Stock Split is a potentially effective means for us to maintain compliance with the Minimum Bid Price Requirement and avoid, or at least mitigate, the likely adverse consequences of our common stock being delisted.

Increase in the number of authorized and available shares of common stock. An additional purpose of a Reverse Stock Split is to effectively increase the authorized number of shares of our common stock because only the outstanding shares of common stock would be reduced by the Reverse Stock Split. We have a limited number of authorized and unreserved shares that are available for future issuance, and implementing a Reverse Stock Split would provide the flexibility to use our common stock for business and/or financial purposes.

In addition to the 306,790,213 shares of common stock outstanding on March 31, 2023, we have also reserved 4,355,892 shares for issuance upon the exercise of outstanding warrants, 32,012,571 shares for issuance upon the exercise of outstanding stock options, 2,456,978 shares for issuance of outstanding RSU awards, 290,000 shares for issuance of outstanding PSU awards, and 15,380,522 shares for issuance pursuant to the Company's equity incentive plan, employee stock purchase plan and inducement plan, meaning that, as of March 31, 2023, we had 38,713,824 authorized shares available for issuance (in each case these amounts are before any adjustment for any Reverse Stock Split), which the Board believes is insufficient to meet our needs in connection with our future capital requirements and properly incentivizing our key personnel, among other things.

The Board believes that the effective increase in our authorized but unissued shares of common stock that would result from a Reverse Stock Split is necessary in order to provide us with the flexibility to issue additional

shares in the future on a timely basis in connection with potential financings, strategic relationships, business combinations and strategic transactions (including to expand our business or product lines through the acquisition of other businesses or products), among other purposes, without the potential delay and expense associated with convening a special meeting of the stockholders. We have funded our operations to date primarily from the issuance and sale of our securities, and we currently have a limited number of authorized and unreserved shares that are available for future issuance.

In particular, the report of our independent registered public accounting firm that accompanies our audited consolidated financial statements for the year ended December 31, 2022 contained an explanatory paragraph regarding substantial doubt about our ability to continue as a going concern. As discussed in our Annual Report, we disclosed that (i) we anticipate our available cash balance will not be sufficient for the next twelve months from the issuance of our Annual Report and (ii) we plan to raise additional capital to fulfill our operating and capital requirements through public or private equity or debt financings. Our estimate as to how long we expect our existing cash and cash equivalents to be available to fund our operations is based on assumptions that may prove inaccurate, and we could use our available capital resources sooner than we currently expect. In addition, changing circumstances may cause us to increase our spending significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. If we are unable to raise additional capital, when and as needed, our current cash, cash equivalents and restricted cash would be insufficient to sustain our operations and, among other things, stockholder value would be harmed. Accordingly, if our stockholders do not approve this proposal, we will be limited in our ability to raise additional capital, which would materially and adversely affect our financial condition and our ability to continue as a going concern may be materially and adversely affected. Even if this proposal is approved by our stockholders, there is no assurance that we will be successful in raising additional financing.

Our success also depends in part on our continued ability to attract, retain and motivate highly qualified directors, management and key personnel. If this Proposal 4 is not approved by our stockholders, the lack of unissued and unreserved authorized shares of common stock to provide future equity incentive opportunities could adversely impact our ability to achieve these goals. In short, if our stockholders do not approve this Proposal 4, we may not be able to access the capital markets, complete corporate collaborations or partnerships, attract, retain and motivate directors and employees, and pursue other business opportunities integral to our growth and success.

The effective increase in the number of authorized shares of common stock upon approval and implementation of a Reverse Stock Split will not, by itself, have an immediate dilutive effect on our current stockholders. However, if this Proposal 4 is approved, unless otherwise required by applicable law or stock exchange rules, the Board will be able to issue additional shares of common stock from time to time in its discretion without further action or authorization by the stockholders. The newly available authorized shares of common stock would be issuable for any proper corporate purpose, including capital raising transactions of equity or convertible debt securities, the establishment of collaborations or other strategic agreements, stock splits, stock dividends, issuance under current or future equity incentive plans, future acquisitions, investment opportunities, or for other corporate purposes. The future issuance of additional shares of common stock or securities convertible into our common stock may occur at times or under circumstances that could result in a dilutive effect on the earnings per share, book value per share, voting power and percentage interest of the present holders of our common stock, some of whom have preemptive rights to subscribe for additional shares that we may issue.

Other than future issuances under our equity compensation plans, possible issuances (subject to the future discretion of the appointed pricing committee of the Board) under our “at-the-market” sales agreement with Cowen and Company, LLC, and the possible issuance of securities exercisable for our common stock to banks, equipment lessors or other financial institutions, the Board currently has no specific plans, arrangements or understandings to issue the additional authorized shares of common stock that will effectively result from approval and implementation of a Reverse Stock Split. As of the date of this proxy statement, we have a sufficient number of authorized shares of common stock under our Amended and Restated Certificate of Incorporation, as amended, as presently in effect to issue shares of common stock upon the exercise of all outstanding convertible securities and any other outstanding equity-linked obligations as they come due.

Criteria to be Used for Determining Whether to Implement Reverse Stock Split

In determining whether to implement a Reverse Stock Split and which Reverse Stock Split ratio to implement, if any, following receipt of stockholder approval of this Proposal 4, our Board may consider, among other things, various factors, such as:

- the historical trading price and trading volume of our common stock;
- the then-prevailing trading price and trading volume of our common stock and the expected impact of a Reverse Stock Split on the trading market for our common stock in the short- and long-term;
- the continued listing requirements for our common stock on The Nasdaq Capital Market;
- which Reverse Stock Split ratio would result in the least administrative cost to us;
- prevailing general market and economic conditions; and
- whether and when our Board desires to have the additional authorized but unissued shares of common stock that will effectively result from the implementation of a Reverse Stock Split when available to provide the flexibility to use our common stock for business and/or financial purposes.

Certain Risks and Potential Disadvantages Associated with a Reverse Stock Split

We cannot assure you that any proposed Reverse Stock Split will increase our stock price and have the desired effect of maintaining compliance with Nasdaq Marketplace Rules. We expect that a Reverse Stock Split will increase the market price of our common stock so that we may be able to maintain compliance with the Nasdaq \$1.00 minimum bid price requirement. However, the effect of a Reverse Stock Split on the market price of our common stock cannot be predicted with any certainty, and the history of similar reverse stock splits for companies in like circumstances is varied, particularly since some investors may view a reverse stock split negatively. It is possible that the per share price of our common stock after a Reverse Stock Split will not rise in proportion to the reduction in the number of shares of our common stock outstanding resulting from a Reverse Stock Split, the market price per post-Reverse Stock Split share may not remain in excess of the \$1.00 minimum bid price for a sustained period of time, and a Reverse Stock Split may not result in a per share price that would attract brokers and investors who do not trade in lower priced stocks. In addition, although we believe that a Reverse Stock Split may enhance the desirability of our common stock to certain potential investors, we cannot assure you that, if implemented, our common stock will be more attractive to institutional and other long-term investors. Even if we implement a Reverse Stock Split, the market price of our common stock may decrease due to factors unrelated to such Reverse Stock Split. In any case, the market price of our common stock may also be based on other factors which may be unrelated to the number of shares outstanding, including our future performance. If a Reverse Stock Split is consummated and the trading price of the common stock declines, the percentage decline as an absolute number and as a percentage of our overall market capitalization may be greater than would occur in the absence of a Reverse Stock Split.

Any proposed Reverse Stock Split may decrease the liquidity of our common stock and result in higher transaction costs. The liquidity of our common stock may be negatively impacted by a Reverse Stock Split, given the reduced number of shares that would be outstanding after a Reverse Stock Split, particularly if the stock price does not increase as a result of a Reverse Stock Split. In addition, if a Reverse Stock Split is implemented, it will increase the number of our stockholders who own “odd lots” of fewer than 100 shares of common stock. Brokerage commission and other costs of transactions in odd lots are generally higher than the costs of transactions of more than 100 shares of common stock. Accordingly, a Reverse Stock Split may not achieve the desired results of increasing marketability and liquidity of our common stock described above.

The effective increase in the authorized number of shares of our common stock as a result of a Reverse Stock Split could have anti-takeover implications. The implementation of a Reverse Stock Split will result in an effective increase in the authorized number of shares of our common stock, which could, under certain circumstances, have anti-takeover implications. The additional shares of common stock that would become available for issuance if this Proposal 4 is approved and a Reverse Stock Split is implemented could be used by us to oppose a hostile takeover attempt or to delay or prevent changes in control or our management. For example, without further stockholder approval, the Board could adopt a “poison pill” which would, under certain circumstances related to an acquisition of our securities that is not approved by the Board, give certain holders the right to acquire additional shares of our common stock at a low price. The Board also could strategically sell

shares of common stock in a private transaction to purchasers who would oppose a takeover or favor the current Board. Although this Proposal 4 has been prompted by business and financial considerations and not by the threat of any hostile takeover attempt (nor is the Board currently aware of any such attempts directed at us), stockholders should be aware that approval of this Proposal 4 could facilitate future efforts by us to deter or prevent changes in control, including transactions in which the stockholders might otherwise receive a premium for their shares over then current market prices.

Principal Effects of a Reverse Stock Split

After the effective date of any Reverse Stock Split that our Board elects to implement, each stockholder will own a reduced number of shares of common stock. However, any Reverse Stock Split will affect all of our stockholders uniformly and will not affect any of our stockholder's percentage ownership interests, except to the extent that a Reverse Stock Split results in any of our stockholders owning a fractional share as described below. Voting rights and other rights and preferences of the holders of our common stock will not be affected by a Reverse Stock Split (other than as a result of the payment of cash in lieu of fractional shares). For example, a holder of 2% of the voting power of the outstanding shares of our common stock immediately prior to a Reverse Stock Split would continue to hold 2% (assuming there is no impact as a result of the payment of cash in lieu of issuing fractional shares) of the voting power of the outstanding shares of our common stock immediately after such Reverse Stock Split. The number of stockholders of record will not be affected by a Reverse Stock Split (except to the extent that any stockholder holds only a fractional share interest and receives cash for such interest after such Reverse Stock Split).

The principal effects of a Reverse Stock Split will be that:

- each 5 to 10 shares of our common stock owned by a stockholder (depending on the Reverse Stock Split ratio selected by the Board), will be combined into one new share of our common stock without increasing or decreasing the par value thereof;
- no fractional shares of common stock will be issued in connection with any Reverse Stock Split; instead, holders of common stock who would otherwise receive a fractional share of common stock pursuant to a Reverse Stock Split will receive cash in lieu of the fractional share as explained more fully below;
- based upon the Reverse Stock Split ratio selected by the Board, proportionate adjustments will be made to the per share exercise price and/or the number of shares issuable upon the exercise or vesting of all then outstanding stock options, restricted stock units and warrants, which will result in a proportional decrease in the number of shares of our common stock reserved for issuance upon exercise or vesting of such stock options, restricted stock units and warrants, and, in the case of stock options and warrants, a proportional increase in the exercise price of all such stock options and warrants; and
- the number of shares then reserved for issuance under our equity compensation plans will be reduced proportionately based upon the Reverse Stock Split ratio selected by the Board.

The following table contains approximate information, based on share information as of March 31, 2023, relating to our outstanding common stock based on the proposed Reverse Stock Split ratios (without giving effect to the treatment of fractional shares), and information regarding our authorized and available shares:

| Status | Number of Shares of Common Stock Authorized | Number of Shares of Common Stock Issued and Outstanding | Number of Shares of Common Stock Reserved for Future Issuance | Number of Shares of Common Stock Authorized but Unissued and Unreserved |
|-------------------------------|---------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------|
| Pre-Reverse Stock Split | 400,000,000 | 306,790,213 | 54,495,963 | 38,713,824 |
| Post-Reverse Stock Split 1:5 | 400,000,000 | 61,358,042 | 10,899,192 | 327,742,766 |
| Post-Reverse Stock Split 1:6 | 400,000,000 | 51,131,702 | 9,082,660 | 339,785,638 |
| Post-Reverse Stock Split 1:7 | 400,000,000 | 43,827,173 | 7,785,137 | 348,387,690 |
| Post-Reverse Stock Split 1:8 | 400,000,000 | 38,348,776 | 6,811,995 | 354,839,229 |
| Post-Reverse Stock Split 1:9 | 400,000,000 | 34,087,801 | 6,055,107 | 359,857,092 |
| Post-Reverse Stock Split 1:10 | 400,000,000 | 30,679,021 | 5,449,596 | 363,871,383 |

After the effective date of any Reverse Stock Split that our Board elects to implement, our common stock would have a new committee on uniform securities identification procedures (“CUSIP number”), a number used to identify our common stock.

Our common stock is currently registered under Section 12(b) of the Exchange Act, and we are subject to the periodic reporting and other requirements of the Exchange Act. The implementation of any proposed Reverse Stock Split will not affect the registration of our common stock under the Exchange Act. Our common stock would continue to be listed on The Nasdaq Capital Market under the symbol “BNGO” immediately following a Reverse Stock Split, although it is likely that Nasdaq would add the letter “D” to the end of the trading symbol for a period of twenty trading days after the effective date of a Reverse Stock Split to indicate that a Reverse Stock Split had occurred.

Effective Date

The proposed Reverse Stock Split would become effective at 5:00 p.m., Eastern Time, on the business day following the filing of a Certificate of Amendment with the office of the Secretary of State of the State of Delaware, or such later date as is chosen by the Board and set forth in the Certificate of Amendment, which date we refer to in this Proposal 4 as the “Effective Date.” Except as explained below with respect to fractional shares, effective as of 5:00 p.m., Eastern Time, on the Effective Date, shares of common stock issued and outstanding immediately prior thereto will be combined, automatically and without any action on the part of us or our stockholders, into a lesser number of new shares of our common stock in accordance with the Reverse Stock Split ratio determined by our Board within the limits set forth in this Proposal 4.

Cash Payment In Lieu of Fractional Shares

No fractional shares of common stock will be issued as a result of any Reverse Stock Split. Instead, in lieu of any fractional shares to which a stockholder of record would otherwise be entitled as a result of a Reverse Stock Split, we will pay cash (without interest) equal to such fraction multiplied by the average of the closing sales prices of the common stock on The Nasdaq Capital Market during regular trading hours for the five consecutive trading days immediately preceding the Effective Date (with such average closing sales prices being adjusted to give effect to a Reverse Stock Split). After such Reverse Stock Split, a stockholder otherwise entitled to a fractional interest will not have any voting, dividend or other rights with respect to such fractional interest except to receive payment as described above.

As of the Record Date, there were 93 stockholders of record of our common stock. Upon stockholder approval of this Proposal 4, if our Board elects to implement a Reverse Stock Split, stockholders owning, prior to such Reverse Stock Split, less than the number of whole shares of common stock that will be combined into one share of common stock in such Reverse Stock Split would no longer be stockholders. For example, if a stockholder held five shares of common stock immediately prior to a Reverse Stock Split and the Reverse Stock Split ratio selected by the Board was 1:10, then such stockholder would cease to be a stockholder of Bionano following such Reverse Stock Split and would not have any voting, dividend or other rights except to receive payment for the fractional share as described above. Based on our stockholders of record as of the Record Date, and assuming a Reverse Stock Split ratio of 1-for-10, we expect that cashing out fractional stockholders would reduce the number of stockholders of record by 31 holders to 62 holders. In addition, we do 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.

Record and Beneficial Stockholders

If this Proposal 4 is approved by our stockholders and our Board elects to implement a Reverse Stock Split, stockholders of record holding all of their shares of our common stock electronically in book-entry form under the direct registration system for securities will be automatically exchanged by the exchange agent and will receive a transaction statement at their address of record indicating the number of new post-split shares of our common stock they hold after a Reverse Stock Split along with payment in lieu of any fractional shares. Non-registered stockholders holding common stock through a broker should note that such brokers, banks, dealers or other agents may have different procedures for processing a Reverse Stock Split and making payment for fractional shares than those that would be put in place by us for registered stockholders. If you hold your shares with such a broker, bank, dealer or other agent and if you have questions in this regard, you are encouraged to contact your agent.

If this Proposal 4 is approved by our stockholders and our Board elects to implement a Reverse Stock Split, stockholders of record holding some or all of their shares in certificate form will receive a letter of transmittal from Bionano or its exchange agent, as soon as practicable after the effective date of such Reverse Stock Split. Our transfer agent is expected to act as “exchange agent” for the purpose of implementing the exchange of stock certificates. Holders of pre-Reverse Stock Split shares will be asked to surrender to the exchange agent certificates representing pre-Reverse Stock Split shares in exchange for post-Reverse Stock Split shares and payment in lieu of fractional shares (if any) in accordance with the procedures to be set forth in the letter of transmittal. No new post-Reverse Stock Split share certificates will be issued to a stockholder until such stockholder has surrendered such stockholder’s outstanding certificate(s) together with the properly completed and executed letter of transmittal to the exchange agent.

STOCKHOLDERS SHOULD NOT DESTROY ANY PRE-SPLIT STOCK CERTIFICATE AND SHOULD NOT SUBMIT ANY CERTIFICATES UNTIL THEY ARE REQUESTED TO DO SO.

Accounting Consequences

The par value per share of our common stock would remain unchanged at \$0.0001 per share after any Reverse Stock Split. As a result, on the Effective Date, the stated capital on our balance sheet attributable to the common stock would be reduced proportionally, based on the actual Reverse Stock Split ratio, from its present amount, and the additional paid-in capital account would be credited with the amount by which the stated capital would be reduced. The net income or loss per share of common stock would be increased because there would be fewer shares of common stock outstanding. A Reverse Stock Split would be reflected retroactively in our consolidated financial statements. We do not anticipate that any other accounting consequences would arise as a result of any Reverse Stock Split.

No Dissenters’ or Appraisal Rights

Our stockholders are not entitled to dissenters’ or appraisal rights under the General Corporation Law of the State of Delaware with respect to the proposed alternate amendments to our Amended and Restated Certificate of Incorporation, as amended, to allow for a Reverse Stock Split and we will not independently provide the stockholders with any such right if any Reverse Stock Split is implemented.

Material U.S. Federal Income Tax Consequences

The following is a summary of the material U.S. federal income tax consequences of a Reverse Stock Split that are generally expected to be applicable to U.S. Holders (as defined below) who hold their common stock as capital assets within the meaning of Section 1221 of Internal Revenue Code of 1986, as amended (the “Code”) (generally property held for investment). This summary is based on provisions of the Code, applicable Treasury Regulations promulgated thereunder, judicial authority and current administrative rulings and practices as in effect on the date of this proxy statement. Changes to these laws could alter the tax consequences described below, possibly with retroactive effect, which may result in the U.S. federal income tax consequences of a Reverse Stock Split differing substantially from the consequences summarized below. We have not sought and will not seek an opinion of counsel or a ruling from the Internal Revenue Service regarding the federal income tax consequences of a Reverse Stock Split.

This discussion is for general information only and does not purport to consider all aspects of U.S. federal income taxation that might be relevant to a U.S. Holder. This discussion does not address the tax consequences which may apply to stockholders subject to special rules, such as financial institutions, insurance companies, tax-exempt organizations, dealers in securities, real estate investment trusts, regulated investment companies, stockholders who hold their pre-Reverse Stock Split shares through individual retirement or other tax-deferred accounts, stockholders who are not U.S. Holders, stockholders who have a functional currency other than the U.S. dollar, partnerships or other entities classified as partnerships or disregarded entities for U.S. federal income tax purposes (or persons holding our common stock through such entities), stockholders who hold the pre-Reverse Stock Split shares as part of a straddle, hedge, or conversion transaction, stockholders who hold the pre-Reverse Stock Split shares as qualified small business stock within the meaning of Section 1202 of the Code or Section 1244 stock for purposes of Section 1244 of the Code, stockholders who acquired their stock in a transaction subject to the gain rollover provisions of Section 1045 of the Code, or stockholders who acquired their pre-Reverse Stock Split shares pursuant to the exercise of employee stock options or otherwise as compensation.

In addition, this summary does not address: (a) the tax consequences of transactions effectuated before, after or at the same time as a Reverse Stock Split, whether or not they are in connection with a Reverse Stock Split; (b) any U.S. federal non-income tax consequences of a Reverse Stock Split, including estate, gift or other tax consequences; (c) any state, local or non-U.S. tax consequences of a Reverse Stock Split; (d) the alternative minimum tax, the Medicare contribution tax on net investment income, or special tax accounting rules under Section 451(b) of the Code, or (e) tax consequences to holders of options, warrants or similar rights to acquire our common stock. Stockholders are urged to consult their own tax advisors to determine the particular consequences to them.

For purposes of this discussion, a “U.S. Holder” means a beneficial owner of shares of our common stock that is any of the following:

- an individual who is a citizen or resident of the United States or treated as a U.S. citizen or resident for U.S. federal income tax purposes;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or 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 taxation regardless of its source; or
- a trust if (i) a U.S. court can exercise primary supervision over the trust’s administration and one or more “United States persons” (within the meaning of Section 7701(a)(30) of the Code) are authorized or have the authority to control all substantial decisions of the trust or (ii) it has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a United States person for U.S. federal income tax purposes.

A Reverse Stock Split should constitute a “recapitalization” for U.S. federal income tax purposes. In general, the federal income tax consequences of a Reverse Stock Split will vary depending upon whether a U.S. Holder receives cash for fractional shares or solely a reduced number of shares of common stock in exchange for their old shares of common stock. A U.S. Holder who receives solely a reduced number of shares of common stock should generally not recognize gain or loss in a Reverse Stock Split. A U.S. Holder’s aggregate tax basis in the reduced number of shares of common stock should equal the U.S. Holder’s aggregate tax basis in its old shares of common stock and such U.S. Holder’s holding period in the reduced number of shares of common stock will include the holding period in its old shares of common stock exchanged. Treasury Regulations 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 in a recapitalization pursuant to a Reverse Stock Split. U.S. Holders should consult their tax advisors as to application of the foregoing rules where shares of common stock were acquired at different times or at different prices.

A U.S. Holder who receives cash in lieu of a fractional share as a result of a Reverse Stock Split should generally recognize gain or loss equal to the difference, if any, between the amount of cash received and the portion of the U.S. Holder’s basis in the common stock surrendered that is allocated to the fractional share. Such gain or loss will be a capital gain or loss and will be long-term capital gain or loss if the U.S. Holder’s holding period for such shares was more than one year at the time of a Reverse Stock Split. Long-term capital gains of non-corporate U.S. Holders are generally subject to preferential tax rates. There are limitations on the deductibility of capital losses under the Code. A U.S. Holder’s aggregate tax basis in the reduced number of shares of common stock should equal the U.S. Holder’s aggregate tax basis in its old shares of common stock decreased by the basis allocated to the fractional share for which such U.S. Holder is entitled to receive cash, and the holding period of the reduced number of shares received will include the holding period of the old shares exchanged.

Stockholders may be subject to information reporting with respect to any cash received in exchange for a fractional share interest in a new share in a Reverse Stock Split. Stockholders 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. Any amount withheld under such rules is not an additional tax and may be refunded or credited against the stockholder’s U.S. federal income tax liability, provided that the required information is properly furnished in a timely manner to the IRS.

The preceding discussion is intended only as a summary of certain material U.S. federal income tax consequences of a Reverse Stock Split. It is not a complete analysis or discussion of all potential tax effects that may be important to a particular holder. All holders of our common stock should consult their own tax advisors as to the specific tax consequences of a Reverse Stock Split to them, including record retention and tax-reporting requirements, and the applicability and effect of any federal, state, local and non-U.S. tax laws.

Vote Required

Approval of the Reverse Stock Split Proposal requires “For” votes from the holders of a majority of the voting power of the outstanding shares of our common stock and the one share of Series A Preferred Stock, voting together as a single class. Each share of common stock has one vote. The share of Series A Preferred Stock has 3,000,000,000 votes, but those votes **must be voted in the same proportion as the votes cast by shares of common stock on this proposal**. Abstentions will be counted towards the vote total and will have the same effect as “Against” votes for this proposal. We do not anticipate broker non-votes for this proposal because we have been advised by NYSE that this proposal should be considered “routine” under NYSE rules, and accordingly, we believe that your broker may vote your shares on this proposal without instructions from you; however, to the extent there are broker non-votes for this proposal, we believe such broker non-votes will be counted as votes “Against” such proposal. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions. Further, because the share of Series A Preferred Stock has 3,000,000,000 votes and will vote in a manner that mirrors votes actually cast (which does not include abstentions or broker non-votes), abstentions and broker non-votes, if any, will have no effect on the manner in which the Series A Preferred Stock votes are cast. Therefore, if you do not wish for this proposal to pass, you should vote “Against” this proposal.

**THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” PROPOSAL 4.**

PROPOSAL 5
APPROVAL OF AN ADJOURNMENT OF THE ANNUAL MEETING, IF NECESSARY,
TO SOLICIT ADDITIONAL PROXIES

General

If the Annual Meeting is convened and a quorum is present, but there are not sufficient votes to approve Proposal 4 (the Reverse Stock Split Proposal) or if there are insufficient votes to constitute a quorum, our proxy holders may move to adjourn the Annual Meeting at that time in order to enable the Board to solicit additional proxies.

In this proposal, we are asking our stockholders to authorize the holder of any proxy solicited by the Board to vote in favor of granting discretionary authority to the proxy holders, and each of them individually, to adjourn the Annual Meeting to another time and place, if necessary or appropriate (as determined in good faith by the Board), to solicit additional proxies in the event there are not sufficient votes to approve Proposal 4 (the Reverse Stock Split Proposal). If our stockholders approve this proposal, we could adjourn the Annual Meeting and any adjourned or postponed session of the Annual Meeting and use the additional time to solicit additional proxies, including the solicitation of proxies from our stockholders that have previously voted. Among other things, approval of this proposal could mean that, even if we had received proxies representing a sufficient number of votes to defeat Proposal 4 (the Reverse Stock Split Proposal), we could adjourn the Annual Meeting without a vote on such proposal and seek to convince our stockholders to change their votes in favor of such proposal.

If it is necessary or appropriate (as determined in good faith by the Board) to adjourn the Annual Meeting, no notice of the adjourned meeting is required to be given to our stockholders, other than an announcement at the Annual Meeting of the time and place to which the Annual Meeting is adjourned, so long as the meeting is adjourned for 30 days or less and no new record date is fixed for the adjourned meeting. At the adjourned meeting, we may transact any business which might have been transacted at the original meeting.

Vote Required

Approval of this proposal requires “For” votes from the holders of a majority of shares of our common stock present by virtual attendance at the Annual Meeting or represented by proxy and entitled to vote on the matter at the Annual Meeting. The Series A Preferred Stock is not entitled to vote on this proposal. Abstentions will be counted towards the vote total and will have the same effect as “Against” votes for this proposal. We do not anticipate broker non-votes for this proposal because we have been advised by NYSE that this proposal should be considered “routine” under NYSE rules, and accordingly, we believe that your broker may vote your shares on this proposal without instructions from you; however, to the extent there are broker non-votes for this proposal, we believe such broker non-votes will have no effect because they are not considered entitled to vote on this proposal under Delaware law. Nevertheless, whether a proposal is “routine” or “non-routine” remains subject to the final determination of NYSE. If your shares are held by a bank, we believe your shares cannot be voted without your specific instructions.

THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” PROPOSAL 5.

EXECUTIVE OFFICERS

The following table sets forth information concerning our executive officers as of the date of this proxy statement:

| Name | Age | Position |
|----------------------------|-----|-------------------------------------------------|
| R. Erik Holmlin, Ph.D. | 55 | President, Chief Executive Officer and Director |
| Christopher Stewart | 54 | Chief Financial Officer |
| Mark Oldakowski | 49 | Chief Operating Officer |
| Alka Chaubey, Ph.D., FACMG | 50 | Chief Medical Officer |
| Jonathan Dixon, J.D. | 48 | General Counsel |

EXECUTIVE OFFICERS WHO ARE NOT DIRECTORS

The following sets forth certain information with respect to our executive officers who are not directors:

Christopher Stewart. Mr. Stewart has served as our Chief Financial Officer since September 2020. Mr. Stewart served as the Head of Maxwell Ultracapacitors at Tesla, Inc., a public electric vehicle and clean energy company, from May 2019 to July 2020, and as Vice President, Finance and Information Technology at Maxwell Technologies Inc., a public energy storage company, from July 2015 to May 2019 (at which point the company was acquired by Tesla, Inc.). In addition, Mr. Stewart held multiple leadership roles, including as Vice President, Finance at Entropic Communications and as Chief Financial Officer of V-ENABLE Inc. (currently GroundTruth), a leader in targeted mobile advertising. Mr. Stewart received his B.S. in Business Administration from the University of Southern California and his M.S. in Industrial Administration from Carnegie Mellon University.

Mark Oldakowski. Mr. Oldakowski has served as our Chief Operating Officer since November 2017 and previously served as our Vice President, Product Development and Operations since October 2014. Mr. Oldakowski previously served as the Senior Director of Engineering and Chief Product Officer at Brooks Life Science Systems (currently Azenta Life Sciences), a private automation and cryogenic solutions company, from December 2011 to August 2014, and as a Director of Engineering at Affymetrix, Inc. (now Applied Biosystems), a private life science systems company, from April 2009 to October 2011. From December 2007 to April 2009, Mr. Oldakowski served as a Senior Manager and Core Team Leader of R&D for Siemens Healthcare Diagnostics, and for the prior 13 years, he developed sequencing and real-time PCR systems at Applied Biosystems, now a part of Thermo Fisher Scientific. Mr. Oldakowski received both his B.S. in Electrical Engineering and his M.S. in Computer and Systems Engineering from Rensselaer Polytechnic Institute.

Alka Chaubey, Ph.D., FACMG. Dr. Chaubey has served as our Chief Medical Officer since August 2020. Dr. Chaubey has also served on the board of directors of the Cancer Genomics Consortium, a nonprofit organization focusing on clinical cancer genomics, since August 2016, as a member of the Diversity, Equity and Inclusion Committee of the American Board of Medical Genetics and Genomics, since March 2021, and as the Genetics Subdivision Nominating Committee representative of the Association for Molecular Pathology, a nonprofit organization focusing on molecular diagnostics, until July 2021. Dr. Chaubey served as the Head of Cytogenomics at PerkinElmer Genomics, a subsidiary of the public company PerkinElmer, Inc. focused on genetic and genomic testing, from May 2018 to August 2020, where she led the successful development and launch of several innovative products including the CNGnome test (low-pass whole genome sequencing), and a new FSHD assay utilizing Saphyr. She has also played an integral role on Vanadis team at PerkinElmer in their efforts to bring a new PCR-free NIPT technology to the market. Prior to PerkinElmer Genomics, Dr. Chaubey was the Director of the Cytogenomics Laboratory at the Greenwood Genetic Center, a nonprofit genetic diagnostic institute, from August 2013 to August 2020, where she also served as an Assistant Director from August 2010 to August 2013. Dr. Chaubey also holds an academic appointment as the Scientific Director of the Georgia Esoteric and Molecular Laboratory, Scientific Director of the Cytogenetics Laboratory of the Augusta University Medical Center and Adjunct Assistant professor of Pathology of the Medical College of Georgia at Augusta University. Dr. Chaubey received her Ph.D. from Guru Nanak Dev University, Amritsar, India and completed her post-doctoral studies at Center for Cellular and Molecular Biology, Hyderabad, India, and University of Illinois at Chicago.

Jonathan Dixon, J.D. Mr. Dixon has served as our General Counsel since March 2023, and as our Global Head of Legal since March 2022. From March 2015 to March 2022 Mr. Dixon served as Associate General Counsel, IP, at Becton, Dickinson and Company. Prior to this, Mr. Dixon served as Assistant General Counsel at CareFusion from June 2013 to March 2015. From March 2006 to June 2013, he served as Senior Intellectual Property Counsel at Becton, Dickinson and Company. From June 2003 to March 2006, Mr. Dixon served as Director, Legal Affairs at GeneOhm Sciences, Inc. Prior to this he served at the National Institutes of Health as Technology Transfer Officer from June 2001 to June 2003. Mr. Dixon received his B.S. in both Microbiology and Economics from Brigham Young University and received his J.D. from Lewis and Clark College.

**SECURITY OWNERSHIP OF
CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

The following table sets forth information regarding beneficial ownership of our capital stock as of April 1, 2023 by:

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

The following table is based upon information supplied by officers, directors and principal stockholders and Schedules 13D and 13G filed with the SEC. Unless otherwise indicated in a footnote to this table and subject to community property laws where applicable, the Company believes that each of the stockholders named in this table has sole voting and investment power with respect to the shares indicated as beneficially owned.

Applicable percentages are based on 306,790,213 shares of our common stock outstanding on April 1, 2023, adjusted as required by rules promulgated by the SEC. Unless otherwise indicated, the address for the following stockholders is care of: Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121.

| Name of Beneficial Owner | Shares Owned Directly | Securities Exercisable within 60 Days of April 1, 2023 | Warrants | Number of Shares Beneficially Owned ⁽¹⁾ | %(²) |
|-------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------|----------|----------------------------------------------------|-------------------|
| Greater than 5% Stockholders | | | | | |
| BlackRock, Inc. ⁽³⁾ | 23,240,256 | — | — | 23,240,256 | 7.58% |
| The Vanguard Group ⁽⁴⁾ | 16,064,444 | — | — | 16,064,444 | 5.24% |
| Directors and Named Executive Officers | | | | | |
| David L. Barker, Ph.D. ⁽⁵⁾ | 58,364 | 244,672 | 3,894 | 306,930 | * |
| R. Erik Holmlin, Ph.D. | 853,715 | 1,669,337 | 1,630 | 2,524,682 | * |
| Yvonne Linney, Ph.D. | — | 304,392 | — | 304,392 | * |
| Albert Luderer, Ph.D. | — | 284,937 | — | 284,937 | * |
| Hannah Mamuszka | — | 324,392 | — | 324,392 | * |
| Aleksandar Rajkovic, M.D., Ph.D. | — | 231,964 | — | 231,964 | * |
| Christopher J. Twomey ⁽⁶⁾ | 64,500 | 275,896 | 64,500 | 404,896 | * |
| Kristiina Vuori, M.D., Ph.D. | — | 273,743 | — | 273,743 | * |
| Vincent Wong, J.D. | — | 208,356 | — | 208,356 | * |
| Alka Chaubey, Ph.D., FACMG | 130,873 | 581,564 | — | 712,437 | * |
| Mark Oldakowski | 339,338 | 650,789 | 815 | 990,942 | * |
| Soheil Shams, Ph.D. ⁽⁷⁾ | 571,198 | — | — | 571,198 | * |
| All current executive officers and directors as a group (13 persons)⁽⁸⁾ | 1,717,433 | 5,856,050 | 70,839 | 7,644,322 | 2.44% |

* Represents beneficial ownership of less than 1%.

- (1) Beneficial ownership is determined in accordance with SEC rules. In computing the beneficial ownership we have included shares for which the named person has sole or shared power over voting or investment decisions. The number of shares of common stock beneficially owned includes common stock which the named person has the right to acquire, through option exercise, RSU vesting, warrant exercise or otherwise, within 60 days after April 1, 2023. No other person or group of affiliated persons is known by us to beneficially own more than 5% of our common stock as of April 1, 2023.
- (2) For each named person, the percentage ownership includes common stock that the person has the right to acquire within 60 days after April 1, 2023, as described in Footnote 1. However, such shares are not deemed outstanding with respect to the calculation of ownership percentage for any other person. In some cases, beneficial ownership calculations for five percent or greater stockholders are based solely on publicly-filed Schedules 13D or 13G, which five percent or greater stockholders are required to file with the SEC, and which generally set forth ownership interests as of April 1, 2023 unless otherwise provided.
- (3) Consists of 23,240,256 shares of common stock held by the following subsidiaries of BlackRock, Inc. ("BlackRock"): BlackRock Advisors, LLC; Aperio Group, LLC; BlackRock Investment Management (UK) Limited; BlackRock Asset Management Canada

Limited; BlackRock (Netherlands) B.V.; BlackRock Fund Advisors; BlackRock Asset Management Ireland Limited; BlackRock Institutional Trust Company, National Association; BlackRock Financial Management, Inc.; BlackRock Fund Managers Ltd; BlackRock Asset Management Schweiz AG; and BlackRock Investment Management, LLC. BlackRock has sole voting power with regard to 22,602,976 shares and sole dispositive power with regard to 23,240,256 shares. The address of BlackRock is 55 East 52nd Street, New York, NY 10055. The foregoing information was obtained from a Form 13G filed on January 30, 2023.

- (4) Consists of 16,064,444 shares of common stock held by The Vanguard Group, Inc.'s ("Vanguard") clients, including investment companies registered under the Investment Company Act of 1940 and other managed accounts, that have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, such common stock. Vanguard has shared voting power with regard to 5,219,421 shares, sole dispositive power with regard to 15,607,138 shares and shared dispositive power with regard to 457,306 shares. The address of Vanguard is 100 Vanguard Blvd., Malvern, PA 19355. The foregoing information was obtained from a Form 13G filed on February 9, 2023.
- (5) As of the Record Date, Dr. Barker owned the one share of Series A Preferred Stock issued and outstanding as of such date. Such share of Series A Preferred Stock is not convertible into common stock and has voting rights as described under "Questions and Answers About These Proxy Materials and Voting—How many votes do I have?"
- (6) The indicated ownership consists of 64,500 shares of common stock held by the Christopher J. Twomey and Rebecca J. Twomey Family Trust U.T.D. September 20, 2002.
- (7) The indicated ownership consists of 571,198 shares of common stock held by The Soheil and Azita Shams Family Trust.
- (8) Consists of (i) shares identified in the list of directors and executive officers above; (ii) 231,373 and 39,270 shares of common stock held by Christopher Stewart and Jonathan Dixon, respectively; and (iii) 696,562 and 109,446 shares of common stock issuable upon the exercise of stock options that are exercisable or will be exercisable within 60 days of April 1, 2023 by Christopher Stewart and Jonathan Dixon, respectively.

EXECUTIVE AND DIRECTOR COMPENSATION

EXECUTIVE COMPENSATION

Our named executive officers for the year ended December 31, 2022, consisting of our principal executive officer, the next two most highly compensated executive officers as of December 31, 2022 and our other executive officer who would have qualified as a named executive officer but for the fact that he was not serving as an executive officer as of December 31, 2022, were:

- R. Erik Holmlin, Ph.D., our Chief Executive Officer;
- Mark Oldakowski, our Chief Operating Officer;
- Alka Chaubey, Ph.D., FACMG, our Chief Medical Officer; and
- Soheil Shams, Ph.D., our former Chief Informatics Officer.

The following section provides an overview of the 2022 executive compensation decisions for our named executive officers. The compensation decisions described in the tables and narrative below were made in 2022 or in early 2023.

Summary Compensation Table

The following table presents all of the compensation awarded to or earned by or paid to our named executive officers during the fiscal years ended December 31, 2022 and 2021.

| Name and Principal Position | Year | Salary (\$) | Bonus (\$) | Stock Awards ⁽¹⁾ (\$) | Option Awards ⁽²⁾ (\$) | Non-Equity Incentive Plan Compensation ⁽³⁾ (\$) | All Other Compensation ⁽⁴⁾ (\$) | Total (\$) |
|----------------------------------------------------------------------------------|------|----------------|-----------------------|----------------------------------------|-----------------------------------------|---------------------------------------------------------------------|--------------------------------------------------|---------------|
| R. Erik Holmlin, Ph.D. <i>Chief Executive Officer</i> | 2022 | 543,942 | — | — | 1,932,000 | 277,950 | 12,680 | 2,766,572 |
| | 2021 | 483,684 | 34,300 ⁽⁵⁾ | 2,749,200 | 4,170,430 | 121,508 | 21,349 | 7,580,471 |
| Mark Oldakowski <i>Chief Operating Officer</i> | 2022 | 419,154 | — | — | 897,000 | 171,990 | 12,680 | 1,500,824 |
| | 2021 | 371,162 | 26,300 ⁽⁵⁾ | 1,137,600 | 1,479,830 | 76,420 | 13,848 | 3,105,160 |
| Alka Chaubey, Ph.D., FACMG <i>Chief Medical Officer⁽⁶⁾</i> | 2022 | 399,269 | — | — | 759,000 | 146,880 | 12,680 | 1,317,829 |
| Soheil Shams, Ph.D. <i>Former Chief Informatics Officer⁽⁷⁾</i> | 2022 | 260,077 | — | 10,213,217 ⁽⁸⁾ | 759,000 | — | 112,499 | 11,344,793 |

- (1) Represent the aggregate grant date fair value of RSU awards and performance-vesting restricted stock unit (“PSU”) awards granted to our named executive officers during the period reported, each calculated in accordance with FASB ASC 718, Compensation - Stock Compensation. The amounts for 2021 consist of RSU awards for Dr. Holmlin and Mr. Oldakowski and a PSU award for Dr. Holmlin. For Dr. Holmlin’s 2021 PSU award, the amount disclosed is the maximum potential value at the grant date assuming the highest level of performance achievement, calculated in accordance with FASB ASC 718, to be \$1,374,600. These amounts do not reflect whether the named executive officer has actually realized or will realize a financial benefit from the awards upon the vesting of the granted stock awards, or the sale of the shares underlying such stock awards. For additional detail, see Note 10 of the Annual Report.
- (2) In accordance with SEC rules, this column reflects the aggregate grant date fair value of option awards granted to our named executive officers during the period reported, as determined in accordance with FASB ASC 718. The valuation assumptions used in calculating the fair value of the stock options are included in the notes to our audited consolidated financial statements included in Note 10 of the Annual Report. These amounts do not reflect the actual economic value that may be realized by the named executive officer upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.
- (3) Amounts reported represent performance-based bonuses earned in the period presented. For more information, see “Performance-Based Bonus Opportunity” below.
- (4) Amounts for 2022 reflect 401(k) matching contributions of \$12,200, \$12,200, \$12,200 and \$9,153 for Dr. Holmlin, Mr. Oldakowski, Dr. Chaubey and Dr. Shams, respectively, based on a percentage matching system offered by us, and \$480 for life insurance premiums for Dr. Holmlin, Mr. Oldakowski and Dr. Chaubey. Dr. Shams did not receive compensation for life insurance premiums. For Dr. Shams, the amount disclosed for 2022 consists of the following: \$79,615 paid as cash severance in connection with his termination (see the section titled “—Potential Payments upon Termination or Change in Control” below); \$3,657 paid in connection with insurance for Dr. Shams vehicles; and \$20,074 paid in connection with a car and gas allowance.
- (5) Amounts represent one-time bonus payments to Dr. Holmlin and Mr. Oldakowski in recognition of material sacrifices made for the Company at the height of the COVID-19 pandemic. Our Compensation Committee does not anticipate that such bonus payments will become a regular practice for us.
- (6) Dr. Chaubey was not a named executive officer in 2021.
- (7) Dr. Shams served as our Chief Informatics Officer from October 2021 to October 2022. The amounts reported in 2022 reflect all

compensation earned by Dr. Shams during 2022 pursuant to his employment agreement, effective October 18, 2021 (the “Shams Employment Agreement”), his stock restriction agreement, effective October 18, 2021 (the “Shams Stock Restriction Agreement”), and his separation and consulting agreement, dated October 4, 2022 (the “Shams Separation Agreement”).

- (8) In connection with Dr. Shams’ termination in October 2022, pursuant to the terms of the Shams Stock Restriction Agreement, the Shams Employment Agreement and the Shams Separation Agreement, the remaining service-based vesting conditions imposed on the shares of our common stock issued to Dr. Shams in connection with our acquisition of BioDiscovery, LLC was accelerated in full. At the time of the acquisition, we agreed with Dr. Shams that such equity consideration be subject to certain service-based re-vesting conditions in addition to the acceleration of the vesting in certain circumstances. As a result, the Company deemed the acceleration a modification of the Shams Stock Restriction Agreement for accounting purposes. In accordance with SEC requirements and in order to reflect all compensation decisions made by the Company during 2022 with respect to stock awards subject to service-based re-vesting conditions, the amount disclosed as “Stock Awards” for Dr. Shams for 2022 in the table above represents the incremental fair value of the modified awards, which was \$10,213,217.

Compensation Program Overview

Our compensation program for executive officers is designed to encourage our management team to continually achieve our short-term and long-term corporate objectives while effectively managing business risks and challenges. We provide what we believe is a competitive total compensation package to our management team through a combination of base salary, an annual performance-based bonus opportunity and long-term equity-based incentives. The compensation of our named executive officers other than our chief executive officer is generally determined and approved by the Compensation Committee of our Board, and the compensation of our chief executive officer is approved by our Board based upon the recommendations of the Compensation Committee. Historically, the total compensation of our executives has been below the 50th percentile compared to our peer group. In setting the compensation of our executives, our Compensation Committee has outlined a plan to bring the total compensation of our executives closer to the 50th percentile of our peer group over several years. Further, in an effort to align the interests of our executives with our interests, our Compensation Committee’s plan to increase executive total compensation involves a greater emphasis on the executive’s performance-based bonus opportunity compared to base salary in setting total target cash compensation for each executive. Please refer to “—Annual Base Salary” and “—Performance Based Bonus Opportunity” below.

At our 2022 annual meeting of stockholders, our non-binding stockholder advisory vote to approve the compensation of our named executive officers was supported by approximately 58% of the votes cast for or against the advisory approval. We continue to evaluate our executive compensation program and solicit input from our largest investors. Based on these results, as discussed above in “Stockholder Engagement and Communications with the Board of Directors,” our management and the Chair of our Board and the Compensation Committee discussed our pay practices with certain of our institutional stockholders following the 2022 annual meeting of stockholders. Among the topics discussed was:

- the desire for additional disclosure regarding our peer group;
- our compensation compared to our peer group; and
- a clear rationale in the event we provide one-off or off-cycle incentive opportunities to our named executive officers.

In response to those discussions, we have provided enhanced disclosure regarding the peer group we used to set our compensation practices for 2022 and 2023 and clarified that our Compensation Committee does not anticipate that the off-cycle RSU awards and PSU awards granted in 2021 to Dr. Holmlin and Mr. Oldakowski will become a regular practice for us. We do expect, however, that the equity mix of option awards and stock awards may be adjusted from time-to-time in our annual compensation cycle as we seek to better align our incentive compensation practices with our peer group. We anticipate the additional disclosures will address many of the matters raised during our stockholder outreach but we plan to continue our stockholder outreach on an ongoing basis and adjust our disclosure as necessary.

In mid-2021, upon the recommendation of Aon/Radford, the Compensation Committee determined our peer group of companies for making 2022 compensation decisions by selecting 15 companies from a list of publicly traded life sciences companies within gene sequencing, diagnostics and life sciences tools, and services companies, and with market values generally between \$500 million to \$5 billion, annual revenues less than \$100 million and headcount under 500 employees. In August 2022, the Compensation Committee expanded our peer group of companies used by it in making 2023 compensation decisions to include five additional public

companies within comparable areas of science, valuation and operational size, after adjusting the criteria for our peer group to include market values generally between \$150 million to \$2 billion, annual revenues less than \$200 million, positive revenue growth and employee headcount between 100 to 900 full time employees.

Our peer group established in 2021 and expanded in 2022 was comprised of the following companies:

| | | | | |
|-------------------------------|------------------------------|-----------------------------------------|------------------------------|-----------------------|
| 908 Devices Inc. | Absci Corporation | Adaptive Biotechnologies Corporation | Akoya Biosciences, Inc. | Berkeley Lights, Inc. |
| CareDx, Inc | Castle Biosciences, Inc. | Codexis, Inc. | Cytek Biosciences, Inc. | DermTech, Inc. |
| NanoString Technologies, Inc. | Nautilus Biotechnology, Inc. | Pacific Biosciences of California, Inc. | Personalis, Inc. | Quanterix Corporation |
| Quantum-Si incorporated | Seer, Inc. | Singular Genomics Systems, Inc. | Twist Bioscience Corporation | Veracyte, Inc. |

Our 2021 peer group consisted of:

| | | | | |
|--------------------------|--------------------------------------|-------------------------|-------------------------------|-----------------------------------------|
| 908 Devices Inc. | Adaptive Biotechnologies Corporation | Akoya Biosciences, Inc. | Berkeley Lights, Inc. | CareDx, Inc |
| Castle Biosciences, Inc. | Codexis, Inc. | DermTech, Inc. | NanoString Technologies, Inc. | Pacific Biosciences of California, Inc. |
| Personalis, Inc. | Quanterix Corporation | Seer, Inc. | Twist Bioscience Corporation | Veracyte, Inc. |

The 2022 additions to our peer group were:

| | | | | |
|-------------------|-------------------------|------------------------------|-------------------------|---------------------------------|
| Absci Corporation | Cytek Biosciences, Inc. | Nautilus Biotechnology, Inc. | Quantum-Si incorporated | Singular Genomics Systems, Inc. |
|-------------------|-------------------------|------------------------------|-------------------------|---------------------------------|

Annual Base Salary

Base salaries serve to provide fixed cash compensation to our executive officers for performing their ongoing responsibilities. Base salaries for our executive officers are approved by the Compensation Committee upon employment, and are reviewed and adjusted, as appropriate, upon the recommendation of the Compensation Committee on an annual basis, based on consideration of various factors, including:

- The individual's role and responsibilities;
- Individual contribution and performance over the past year;
- Overall experience and expertise;
- Current base salary;
- Labor market conditions;
- Inflation;
- Corporate performance;
- Succession planning; and
- Salaries for similar positions within our industry.

The compensation of our named executive officers is generally determined and approved by our Board, based on the recommendation of the Compensation Committee. The below 2022 base salaries were in line with the general policies implemented across the Company in setting pay increases for 2022 pursuant to our Compensation Committee’s plan to bring the total compensation of our executives closer to the 50th percentile of our peer group over several years. The 2022 base salaries that became effective as of January 1, 2022 were as follows:

| NAME | 2022 BASE SALARY (\$)(2) |
|----------------------------|--------------------------|
| R. Erik Holmlin, Ph.D. | 545,000 |
| Mark Oldakowski | 420,000 |
| Alka Chaubey, Ph.D., FACMG | 400,000 |
| Soheil Shams, Ph.D.(1) | 345,000 |

- (1) As discussed in “—Summary Compensation Table” above, Dr. Shams’ 2022 salary was prorated for time served. The salary actually paid to Dr. Shams in 2022 was \$260,077.
- (2) The base salary for Dr. Holmlin and Mr. Oldakowski increased in 2022 by 11.2% and 11.7%, respectively, from the base salaries in effect in 2021 for Dr. Holmlin and Mr. Oldakowski of \$490,000 and \$376,000, respectively. In connection with our Compensation Committee’s plan to increase executive compensation to bring it closer to the 50th percentile of our peer group over a period of years, our Compensation Committee approved these increases in base salary in February 2022 to place Dr. Holmlin’s base salary, and Mr. Oldakowski’s base salary near the 25th percentile of our peer group.

Upon review of our compensation philosophy, market data and the recommendations of Pearl Meyer, in February 2023 our Compensation Committee approved base salary increases for Dr. Holmlin, Mr. Oldakowski and Dr. Chaubey to \$600,000, \$460,000 and \$440,000, respectively, each effective January 1, 2023, in order to better align our executives’ total compensation with the 50th percentile of our peer group selected for 2023.

Performance-Based Bonus Opportunity

In addition to base salaries, our named executive officers are eligible to receive annual performance-based cash bonuses, which are designed to provide appropriate incentives to our executives to achieve defined annual performance goals and to reward our executives for achievement towards these goals. As part of the annual planning process, our management proposes a set of objective (i.e., achieved or not achieved) and/or quantitative (e.g., an anticipated revenue) corporate goals to the Compensation Committee early in the year. We typically propose corporate goals across four categories, including financial, market development, product development, and operations and quality. The Compensation Committee reviews and discusses the corporate goals, often suggesting changes for our management to consider. The final corporate goals are then approved by the Compensation Committee early in the year. At the end of the year, the goals are scored by the Compensation Committee. The annual performance-based bonus each named executive officer is eligible to receive is generally based on the extent to which we achieve our corporate goals and, for all except Dr. Holmlin, the individual’s contributions to such achievements. At the end of the year, our Compensation Committee reviews each executives’ performance in light of the corporate goal achievement and determines the actual bonus payout to be awarded to each of our named executive officers.

The 2022 performance-based bonus opportunity of our named executive officers as a percentage of respective base salary were as follows:

| NAME | 2022 TARGET BONUS(2) |
|----------------------------|----------------------|
| R. Erik Holmlin, Ph.D. | 60% |
| Mark Oldakowski | 45% |
| Alka Chaubey, Ph.D., FACMG | 40% |
| Soheil Shams, Ph.D.(1) | 40% |

- (1) Dr. Shams’ employment terminated in October 2022 and, thus, he was not eligible for a 2022 annual performance-based bonus.
- (2) The performance-based bonus opportunity as a percentage of respective base salary for Dr. Holmlin and Mr. Oldakowski increased in 2022 from the 2021 bonuses of 50% and 40% respectively. In connection with our Compensation Committee’s plan to increase executive compensation to bring it closer to the 50th percentile of our peer group over a period of years, our Compensation Committee approved these increases in performance-based bonus opportunities in February 2022 to place Dr. Holmlin’s and Mr. Oldakowski’s performance-based bonus opportunity equal to the 25th percentile of our peer group.

Upon review of our compensation philosophy, market data and the recommendations of Pearl Meyer, our Compensation Committee approved increases to 2023 performance-based bonus opportunities for Dr. Holmlin, Mr. Oldakowski and Dr. Chaubey equal to 67%, 55% and 55%, respectively, of each of their respective base salaries in order to better align our executives' total compensation with the 50th percentile of our 2023 peer group and the Compensation Committee's focus on assigning greater weight towards performance-based bonus opportunity as a component of total cash compensation.

For 2022, Dr. Holmlin's payout was based entirely on achievement of our 2022 corporate goals; Mr. Oldakowski's and Dr. Chaubey's payouts were based on achievement of our 2022 corporate goals (50% weighting) and individual performance (50% weighting). Our corporate performance objectives for 2022, as established by our Compensation Committee, included goals regarding financial (including target revenues and operating income) weighted at 50%, market development (including advancing clinical studies and progressing the reimbursement path for optical genome mapping ("OGM") weighted at 20%, product development (including with respect to OGM systems, reagents, and bioinformatic applications) weighted at 20%, and operation and quality (including maintaining robust supply chain and advancing our quality systems) weighted at 10%. In February 2023, our Compensation Committee approved an 85% overall achievement level of our 2022 corporate performance objectives, recognizing an 82% achievement of the operations goals, 79% achievement of the market development goals, 88% of the product development goals and 100% of the product quality goals. Based on our overall corporate objective achievement and based on its evaluation of individual performance (for all except Dr. Holmlin), our Compensation Committee awarded bonuses to each of our named executive officers except for Dr. Shams, as described above, in February 2023. The 2022 amounts reflected as Non-Equity Incentive Plan Compensation in the Summary Compensation Table for our named executive officers reflect bonuses earned for 2022 performance. Dr. Shams' employment terminated in October 2022 and thus was not eligible for a 2022 annual performance bonus.

Equity-Based Incentive Awards

We believe that our ability to grant equity-based awards is a valuable and necessary compensation tool that aligns the long-term financial interests of our employees, consultants and directors with the financial interests of our stockholders. In addition, we believe that our ability to grant equity-based awards helps us to attract, retain and motivate employees, consultants and directors, and encourages them to devote their best efforts to our business and financial success. Our board of directors and our Compensation Committee is responsible for approving equity grants. Vesting of equity awards is generally tied to continuous service with us and serves as an additional retention measure. Our executives generally are awarded an initial new hire grant upon commencement of employment and annually at the beginning of the year. Subsequent discretionary annual equity-based awards may occur for our executives and our eligible non-executive employees as part of our annual performance reviews and as determined by the Compensation Committee and our Board. Such equity-based awards are for the purpose of retaining and incentivizing our executives and eligible non-executive employees consistent with guidelines provided by our Compensation Committee and our Board. Additional grants may occur periodically in order to specifically incentivize executives with respect to achieving certain corporate goals or to reward executives for exceptional performance. Individual grants are determined based on several factors, including current corporate and individual performance, outstanding equity holdings and their retention value and total ownership, and market data provided by our independent compensation consultant.

Prior to our August 2018 initial public offering ("IPO"), we granted all equity awards pursuant to our Amended and Restated 2006 Equity Compensation Plan (the "2006 Plan"). Following our IPO, we have granted all equity awards pursuant to the 2018 Equity Incentive Plan, as amended ("2018 Plan") and the 2020 Inducement Plan, as amended ("Inducement Plan"). We have historically granted options to our named executive officers. All options are granted with a per share exercise price equal to no less than the fair market value of a share of our common stock on the date of the grant of such award.

As discussed above, in 2021, in addition to the annual equity awards, our Compensation Committee granted Dr. Holmlin an RSU award and a PSU award, and Mr. Oldakowski an RSU award. The RSU awards and PSU award were granted in lieu of off-cycle retention options which had been granted to our employees except Dr. Holmlin and Mr. Oldakowski and were designed to further align the interests of Dr. Holmlin and Mr. Oldakowski with our stockholders. Our Compensation Committee does not anticipate that such off-cycle equity awards will become a regular practice. In 2022, we returned to our regular practice for annual equity grants, which resulted in substantially lower grant date fair values for the 2022 awards compared to 2021.

In 2022, in consultation with our compensation consultant, and based on market data, our Compensation Committee determined it was appropriate to grant stock options to our named executive officers. Specifically, our Compensation Committee made an annual grant of options to purchase 1,400,000 shares to Dr. Holmlin, 650,000 shares to Mr. Oldakowski, 550,000 shares to Dr. Chaubey and 550,000 shares to Dr. Shams. Each option has an exercise price of \$2.18 per share and vests as follows: shares subject to the option vest monthly over 48 months beginning on the one-month anniversary of the grant date, such that each option shall be fully vested and exercisable on the four-year anniversary of the grant date. The total grant date value of awards for 2022 was significantly reduced compared to 2021 and no supplemental or off-cycle grants in the form of RSUs and PSUs were included in the award grants for 2022. Going forward, we will continue to evaluate our equity compensation practices with respect to the use of options, RSUs, and PSUs and may use a mix of these equity vehicles to incentivize our executive team.

For additional information, please see below under “Outstanding Equity Awards at Fiscal Year-End.”

Agreements with Our Named Executive Officers

Below are descriptions of our employment agreements with our named executive officers, and in the case of Dr. Shams, a separation agreement. For a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control under the arrangements with our named executive officers, please see “—Potential Payments upon Termination or Change in Control” below.

Dr. Holmlin. We entered into an employment agreement with Dr. Holmlin in January 2011, as amended in March 2011 and in November 2017, which governs the current terms of his employment with us. Pursuant to the agreement, as amended, Dr. Holmlin is entitled to an annual base salary and an annual performance bonus. Dr. Holmlin’s employment is at will.

Mr. Oldakowski. We entered into an employment agreement with Mr. Oldakowski on November 7, 2017, which governs the current terms of his employment with us. Pursuant to the agreement, Mr. Oldakowski is entitled to an annual base salary and is eligible to receive an annual performance bonus. Mr. Oldakowski’s employment is at will.

Dr. Chaubey. We entered into an employment agreement with Dr. Chaubey on August 31, 2020, which governs the current terms of her employment with us. Pursuant to the agreement, Dr. Chaubey is entitled to an annual base salary and is eligible to receive an annual performance bonus. Dr. Chaubey’s employment is at will.

Dr. Shams. We entered into the Shams Employment Agreement with Dr. Shams on October 8, 2021, which governed the terms of his employment with us until his employment was terminated by the Company without cause, effective October 3, 2022. We entered into the Shams Separation Agreement with Dr. Shams on October 4, 2022, which governed the terms of his consulting arrangement with us until its termination on December 14, 2022, pursuant to which Dr. Shams provided consulting services to the Company in consideration of a consulting fee of \$750 per hour and continued vesting of outstanding equity awards until his continued service ceased. The Shams Separation Agreement also provided for certain severance compensation payable to Dr. Shams, including benefits in satisfaction of the Company’s obligations under the Shams Employment Agreement and under the terms of the Shams Stock Restriction Agreement, as further described under “—Potential Payments upon Termination or Change in Control” below.

Potential Payments upon Termination or Change in Control

Regardless of the manner in which a named executive officer’s service terminates, each named executive officer (including Dr. Shams, prior to October 2022) is entitled to receive amounts earned during his term of service, including unpaid salary and unused vacation. In addition, each of our named executive officers (other than Dr. Shams) is eligible to receive certain benefits pursuant to his or her employment agreement with us, as described below. For the definitions of “cause,” “good reason” and “disability” referenced below, please refer to the individual agreements with each of our named executive officers.

Dr. Holmlin. Upon Dr. Holmlin’s termination for any reason other than death, disability, cause or resignation without good reason, and subject to Dr. Holmlin’s execution of a release, Dr. Holmlin shall be eligible to receive (i) a lump sum amount equal to nine months of base salary, (ii) accelerated vesting of any options or restricted shares that would have vested within 18 months after the date of termination and (iii) premiums for continued health coverage for nine months following the date of termination, or until Dr. Holmlin is no longer eligible for

continuation coverage, whichever is earlier. In the event of termination due to disability, and subject to Dr. Holmlin's execution of a release, Dr. Holmlin shall be eligible to receive accelerated vesting in full for any unvested portion of the options granted pursuant to his agreement. In the event of a deemed liquidation event (as defined in Dr. Holmlin's employment agreement), the options granted to Dr. Holmlin pursuant to his agreement shall vest in full.

Mr. Oldakowski. Upon termination without cause, and subject to Mr. Oldakowski's execution of a release, Mr. Oldakowski will be eligible to receive (i) six months of continued base salary payments at the rate in effect at the time of termination and (ii) premiums for continued health coverage for six months following the date of termination or until Mr. Oldakowski is no longer eligible for continuation coverage or he becomes eligible for new healthcare eligibility available through new employment, whichever is earlier.

Dr. Chaubey. Upon termination without cause, and subject to Dr. Chaubey's execution of a release, Dr. Chaubey will be eligible to receive (i) six months of continued base salary payments at the rate in effect at the time of termination and (ii) premiums for continued health coverage for six months following the date of termination or until Dr. Chaubey is no longer eligible for continuation coverage or he becomes eligible for new healthcare eligibility available through new employment, whichever is earlier.

Dr. Shams. Under the Shams Employment Agreement, upon a termination of services by the Company without cause, Dr. Shams was entitled to continuation of his then-current base salary for six months and COBRA premium payments for up to six months, subject to his execution of a separation agreement including a comprehensive waiver and release of claims in favor of the Company, in such form as the Company may require. In addition, under the terms of the Shams Stock Restriction Agreement, Dr. Shams was entitled to accelerated vesting of restricted stock granted to him on October 18, 2021 in connection with our acquisition of BioDiscovery, LLC. As such, in connection with his termination without cause, we entered into the Shams Separation Agreement with Dr. Shams. Pursuant to the Shams Separation Agreement, Dr. Shams is entitled to severance in the form of monthly cash payments of his then-current base salary for six months, continued COBRA premium payments until April 30, 2023, and acceleration of the shares subject to the Shams Stock Restriction Agreement. The severance benefits are contingent upon Dr. Shams execution of an effective release and waiver of claims against us, as well as complying with certain other post-termination obligations to us as set forth in the Shams Separation Agreement, including, among others, certain non-competition and non-solicitation obligations.

Each of our named executive officers except Dr. Shams holds stock options, RSU awards or PSU awards under the 2006 Plan, 2018 Plan or the Inducement Plan, as the case may be, that were granted subject to the general terms of the 2006 Plan, the 2018 Plan or the Inducement Plan, as applicable, and the relevant form award agreement. The specific vesting terms of each named executive officer's stock options, RSU awards and PSU awards (including any acceleration provisions) are described below under "—Outstanding Equity Awards at Fiscal Year-End."

Outstanding Equity Awards at Fiscal Year-End

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

| Name | Grant Date | Option Awards ⁽¹⁾ | | | | Stock Awards ⁽²⁾ | | | | Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ⁽⁵⁾ (\$) |
|------------------------|--------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------|------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|
| | | Number of Securities Underlying Unexercised Options (#) Exercisable | Number of Securities Underlying Unexercised Options (#) Unexercisable | Option Exercise Price Per Share ⁽³⁾ (\$) | Option Expiration Date | Number of Shares or Units of Stock That Have Not Vested ⁽⁴⁾ (#) | Market Value of Shares or Units of Stock That Have Not Vested ⁽⁵⁾ (\$) | Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested ⁽⁶⁾ (#) | | |
| R. Erik Holmlin, Ph.D. | 2/15/2022 ⁽⁸⁾ | 291,666 | 1,108,334 | 2.18 | 2/14/2032 | — | — | — | — | |
| | 5/12/2021 | — | — | — | — | — | — | 290,000 | 423,400 | |
| | 5/12/2021 | — | — | — | — | 145,000 | 211,700 | — | — | |
| | 4/1/2021 ⁽⁸⁾ | 322,916 | 452,084 | 7.83 | 3/31/2031 | — | — | — | — | |

Option Awards⁽¹⁾Stock Awards⁽²⁾

| Name | Grant Date | Option Awards ⁽¹⁾ | | Option Exercise Price Per Share ⁽³⁾ (\$) | Option Expiration Date | Stock Awards ⁽²⁾ | | | |
|--------------------|--------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------|------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| | | Number of Securities Underlying Unexercised Options (#) Exercisable | Number of Securities Underlying Unexercised Options (#) Unexercisable | | | Number of Shares or Units of Stock That Have Not Vested ⁽⁴⁾ (#) | Market Value of Shares or Units of Stock That Have Not Vested ⁽⁵⁾ (\$) | Equity Incentive Plan Awards: Number of Units or Other Rights That Have Not Vested ⁽⁶⁾ (#) | Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ⁽⁵⁾ (\$) |
| | 2/18/2020 ⁽⁸⁾ | 205,416 | 84,584 | 1.04 | 2/17/2030 | — | — | — | — |
| | 3/1/2019 ⁽⁸⁾ | 135,937 | 9,063 | 4.25 | 2/28/2029 | — | — | — | — |
| | 10/1/2018 | 256,540 | — | 7.77 | 9/30/2028 | — | — | — | — |
| | 2/7/2017 ⁽⁷⁾ | 96,243 | 57,744 | 1.30 | 2/6/2027 | — | — | — | — |
| | 1/29/2015 | 7,284 | — | 64.22 | 1/28/2025 | — | — | — | — |
| Mark Oldakowski | 2/15/2022 ⁽⁸⁾ | 135,416 | 514,584 | 2.18 | 2/14/2032 | — | — | — | — |
| | 5/12/2021 | — | — | — | — | 120,000 | 175,200 | — | — |
| | 4/1/2021 ⁽⁸⁾ | 114,583 | 160,417 | 7.83 | 3/31/2031 | — | — | — | — |
| | 2/18/2020 ⁽⁸⁾ | 119,999 | 1 | 1.04 | 2/17/2030 | — | — | — | — |
| | 3/1/2019 ⁽⁸⁾ | 56,250 | 3,750 | 4.25 | 2/28/2029 | — | — | — | — |
| | 10/1/2018 | 59,590 | — | 7.77 | 9/30/2028 | — | — | — | — |
| | 2/7/2017 | 34,219 | — | 1.30 | 2/6/2027 | — | — | — | — |
| | 1/29/2015 | 541 | — | 64.22 | 1/28/2025 | — | — | — | — |
| | 10/27/2014 | 1,086 | — | 64.22 | 10/26/2024 | — | — | — | — |
| Alka Chaubey | 2/15/2022 ⁽⁸⁾ | 114,583 | 435,417 | 2.18 | 2/14/2032 | — | — | — | — |
| | 4/1/2021 ⁽⁸⁾ | 114,583 | 160,417 | 7.83 | 3/31/2031 | — | — | — | — |
| | 9/1/2020 ⁽¹⁰⁾ | 175,000 | 125,000 | 0.56 | 8/31/2030 | — | — | — | — |
| | 7/15/2020 | 10,000 | — | 0.50 | 7/14/2030 | — | — | — | — |
| | 5/1/2019 ⁽⁸⁾ | 4,479 | 521 | 4.03 | 4/30/2029 | — | — | — | — |
| | 10/1/2018 | 10,210 | — | 7.77 | 9/30/2028 | — | — | — | — |
| Soheil Shams Ph.D. | 2/15/2022 | 90,228 | — | 2.18 | 3/14/2023 | — | — | — | — |
| | 11/1/2021 | 108,333 | — | 5.40 | 3/14/2023 | — | — | — | — |

- (1) Option awards in this column were granted under the 2006 Plan, the 2018 Plan or the Inducement Plan.
- (2) Stock awards in this column were granted under the 2018 Plan.
- (3) All of the option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors.
- (4) Each award listed in this column represents an RSU award that vests in two equal annual installments on the anniversary of the applicable vesting commencement date, subject to the continued service through each such applicable vesting date. With respect to Dr. Holmlin, his RSU awards provide that if his employment with us is terminated for any reason other than as a result of death, disability, cause, or resignation without good reason, the RSU awards shall be accelerated such that effective as of such termination, the RSU awards shall be deemed vested to the same extent as if Dr. Holmlin remained continuously employed with us through the date that is 18 months following such termination, subject to Dr. Holmlin's execution of a release.
- (5) The market values of the RSU and PSU awards that have not vested are calculated by multiplying the number of shares underlying the RSU awards or PSU awards shown in the table by \$1.46, the closing price of our common stock on the Nasdaq Capital Market December 31, 2022.
- (6) PSU award granted on May 12, 2021 under the 2018 Plan that, in order to vest, requires achievement of certain performance goals during a four-year performance period ending on May 12, 2025, subject to continued service with us through the end of the performance period. With respect to the PSU, if Dr. Holmlin's employment with us is terminated for any reason other than as a result of death, disability, cause, or resignation without good reason, then the PSU may become vested if the performance goal is achieved by the earlier of 18 months following such termination or May 12, 2025, subject to Dr. Holmlin's execution of a release. The number of shares subject to the PSU award assumes achievement of the goals, as there is only a single estimated payout pursuant to the award. In calculating the number of PSU awards reported and their value, we are required by SEC rules to compare our performance through 2022 under the PSU grant against the threshold, target and maximum performance levels for the grant and report in these columns the applicable potential share number and payout amount. If the performance is between levels, we are required to report the potential payout at the next highest level. Based on performance through the end of 2022, we have reported the PSU awards at the maximum level of performance for this performance period. For additional detail, see the discussion in Note 10 of the Annual Report. As of December 31, 2022, none of the performance criteria underlying these PSU awards have been achieved.
- (7) All outstanding options under the 2006 Plan, held by Dr. Holmlin, were amended by our board of directors in August 2018 to suspend the vesting until such time as the price of our common stock is at least \$12.00 per share for 90 consecutive trading days, at which point the suspension will automatically and immediately lapse and the awards will vest to the extent they otherwise would have vested.

pursuant to their terms and notwithstanding the suspension and will continue to vest thereafter under their original vesting schedules. In addition, the suspension will lapse as to the awards held by Dr. Holmlin upon Dr. Holmlin's death, disability or upon a change in control of the Company, as such terms are defined in the 2018 Plan.

- (8) Each option award vests as follows: the shares subject to the option vest monthly over 48 months beginning on the one-month anniversary of the vesting commencement date, such that the option shall be fully vested and exercisable on the four-year anniversary of the vesting commencement date, subject to continued service through each such applicable vesting date.
- (9) Each option award vests as follows: 25% of the shares subject to the option are fully vested and 6.25% of the shares subject to the option vest at the end of each three-month anniversary of the vesting commencement date, subject to single trigger acceleration of vesting in connection with a change of control, provided in each case that the holder is then providing services to us in accordance with the terms of the 2006 Plan.
- (10) Each option award vests as follows: 25% of the shares subject to the option vest on the one-year anniversary of the grant date, and the remaining shares subject to the option vest in 36 equal monthly installments thereafter, subject to continued service through each such applicable vesting date.

Perquisites, Health, Welfare and Retirement Benefits

All of our currently employed named executive officers are eligible to participate in our employee benefit plans, including our medical, dental, vision, life, disability and accidental death and dismemberment insurance plans, in each case on the same basis as all of our other employees. We pay the premiums for the life, disability, accidental death and dismemberment insurance for all of our employees, including our currently employed named executive officers. In addition, we provide a 401(k) plan to our employees, including our currently employed named executive officers, as discussed in the section below entitled "401(k) Plan." We generally do not provide perquisites or personal benefits to our named executive officers.

401(k) Plan

We maintain a defined contribution employee retirement plan ("401(k) plan") for our employees. Our currently employed named executive officers are eligible to participate in the 401(k) plan on the same basis as our other employees. The 401(k) plan is intended to qualify as a tax-qualified plan under Section 401(k) of the Internal Revenue Code of 1986, as amended (the "Code"). The plan permits us to make discretionary contributions, including matching contributions equal to 100% of salary deferrals up to the first 3% of eligible compensation plus 50% of salary deferrals up to the next 2% of eligible compensation. The 401(k) plan currently does not offer the ability to invest in our securities.

Nonqualified Deferred Compensation

Our named executive officers did not participate in, or earn any benefits under, a nonqualified deferred compensation plan sponsored by us during the fiscal year ended December 31, 2022. Our Board may elect to provide our officers and other employees with nonqualified defined contribution or other nonqualified deferred compensation benefits in the future if it determines that doing so is in our best interests.

Equity Benefit Plans

The principal features of our equity plans are summarized below.

2020 Inducement Plan

The Board adopted the Inducement Plan in August 2020. Our 2020 Inducement Plan was adopted without stockholder approval pursuant to Rule 5635(c) of the Nasdaq Listing Rules. Our 2020 Inducement Plan provides for the grant of nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards and other forms of stock awards.

Stock awards granted under our 2020 Inducement Plan may only be made to individuals who did not previously serve as employees or non-employee directors of the Company or an affiliate of the Company (or following such individuals' bona fide period of non-employment with the Company or an affiliate of the Company), as an inducement material to the individuals' entering into employment with the Company or an affiliate of the Company or in a manner otherwise permitted by Rule 5635(c) of the Nasdaq Listing Rules. In addition, stock awards must be approved by either a majority of the Company's "independent directors" (as such term is defined in Rule 5605(a)(2) of the Nasdaq Listing Rules) or the Compensation Committee, provided such committee comprises solely independent directors. The terms of our 2020 Inducement Plan are

otherwise substantially similar to our 2018 Plan (including with respect to the treatment of stock awards upon corporate transactions involving us or certain changes in our capitalization), except stock awards granted under our 2020 Inducement Plan may not be repriced without stockholder approval.

The maximum number of shares of our common stock that may be issued under our 2020 Inducement Plan is 4,100,000 shares. Shares subject to stock awards granted under our 2020 Inducement Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, do not reduce the number of shares available for issuance under our 2020 Inducement Plan. Additionally, shares become available for future grant under our 2020 Inducement Plan if they were issued under stock awards granted under our 2020 Inducement Plan and we repurchase or reacquire them or they are forfeited. This includes shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award.

2018 Equity Incentive Plan

Our 2018 Plan became effective upon the IPO following approval by our Board and our stockholders. The number of shares of common stock reserved for issuance under the 2018 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2019 through January 1, 2028, in an amount equal to 5% of the total number of shares of the Company's capital stock outstanding on the last day of the calendar month before the date of each automatic increase, or a lesser number of shares determined by the Board. As of December 31, 2022, there were options to purchase 22,699,662 shares of common stock outstanding under the 2018 Plan.

Our 2018 Plan provides for the grant of incentive stock options, or ISOs, within the meaning of Section 422 of the Code, to employees, including employees of any parent or subsidiary, and for the grant of nonstatutory stock options ("NSOs") stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards and other forms of stock awards to employees, directors and consultants, including employees and consultants of our affiliates. Our 2018 Plan is a successor to and continuation of our 2006 Plan. Our Compensation Committee has the authority, concurrent with our Board, to administer our 2018 Plan, and may also delegate to one or more of our officers certain authority under the terms of the 2018 Plan.

Pursuant to the 2018 Plan, the maximum number of shares of common stock subject to stock awards granted under the 2018 Plan or otherwise during a single calendar year to any non-employee director, taken together with any cash fees paid by the Company to such non-employee director during such calendar year for service on the Board of Directors, will not exceed \$500,000 in total value (calculating the value of any such stock awards based on the grant date fair value of such stock awards for financial reporting purposes), or, with respect to the calendar year in which a non-employee director is first appointed or elected to the Board of Directors, \$800,000.

Stock options under the 2018 Plan are generally granted with an exercise price equal to the fair market value of our common stock on the date of grant. Options granted under the 2018 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator. Options may have a term up to a maximum of 10 years. Unless the terms of an optionee's stock option agreement provides otherwise, if an optionee's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionee may generally exercise any vested options for a period of three months following the cessation of service. If an optionee's service relationship with us, or any of our affiliates, ceases due to disability or death, or an optionee dies within a certain period following cessation of service, the optionee or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual. In no event may an option be exercised beyond the expiration of its term.

Our 2018 Plan provides that in the event of certain specified significant corporate transactions (or a change in control, as defined below), unless otherwise provided in an award agreement or other written agreement between us and the award holder, the administrator may take one or more of the following actions with respect to such stock awards:

- arrange for the assumption, continuation, or substitution of a stock award by a successor corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to a successor corporation;

- accelerate the vesting, in whole or in part, of the stock award and provide for its termination if not exercised (if applicable) at or before the effective time of the transaction;
- arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us;
- cancel or arrange for the cancellation of the stock award, to the extent not vested or not exercised before the effective time of the transaction, in exchange for a cash payment, if any, as determined by the board; or
- make a payment, in the form determined by our Board, equal to the excess, if any, of (A) the value of the property the participant would have received on exercise of the award immediately before the effective time of the transaction, over (B) any exercise price payable by the participant in connection with the exercise. The plan administrator is not obligated to treat all stock awards or portions of stock awards, even those that are of the same type, in the same manner and is not obligated to treat all participants in the same manner.

Under the 2018 Plan, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

In the event of a change in control, the board of directors may take any of the above-mentioned actions. Awards granted under the 2018 Plan will not receive automatic acceleration of vesting and exercisability in the event of a change in control, although this treatment may be provided for in an award agreement or other written agreement between the Company and the participant. Under the 2018 Plan, a change in control is generally (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock, (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity), (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders, (4) a complete dissolution or liquidation of the Company, or (5) when a majority of our Board becomes comprised of individuals who were not serving on our Board on the date of the underwriting agreement related to the IPO, or the incumbent board, or whose nomination, appointment, or election was not approved by a majority of the incumbent board still in office.

Amended and Restated 2006 Equity Compensation Plan

Our Board adopted and our stockholders originally approved our 2006 Plan in September 2006, and it was subsequently amended and restated in September 2008 and most recently amended in March 2016. No further grants may be made under our 2006 Plan following the IPO, however outstanding awards granted under our 2006 Plan remain subject to the terms of our 2006 Plan and applicable award agreements. As of December 31, 2022, there were options to purchase 236,167 shares of common stock outstanding under the 2006 Plan.

Our 2006 Plan allowed for the grant of ISOs to employees, including employees of any subsidiary, and for the grant of NSOs, stock appreciation rights, restricted stock awards and restricted stock units and other equity awards to employees, directors and consultants, including employees and consultants of our subsidiaries. Our Compensation Committee has the authority, concurrent with our Board, to administer our 2006 Plan. Unless the terms of an optionee's stock option agreement provides otherwise, if an optionee's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionee may generally exercise any vested options for a period of three months following the cessation of service. If an optionee's service relationship with us, or any of our affiliates, ceases due to disability or death, or an optionee dies within a certain period following cessation of service, the optionee or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability or death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual. In no event may an option be exercised beyond the expiration of its term.

Our 2006 Plan provides that in the event of a change of control, all awards granted under the 2006 Plan shall become fully vested and exercisable (as applicable), unless the board of directors determines otherwise. In the event of a change of control, the administrator may take any of the following actions with respect to any

or all outstanding awards: (i) determine that all outstanding options and stock appreciation rights that are not exercised shall be assumed by, or replaced with comparable options by the surviving corporation (or a parent or subsidiary of the surviving corporation), and other outstanding grants that remain in effect after the change of control shall be converted to similar grants of the surviving corporation (or a parent or subsidiary of the surviving corporation), (ii) require that grantees surrender their outstanding options and stock appreciation rights in exchange for one or more payments, in cash or Company stock as determined by the board of directors, in an amount, if any, equal to the amount by which the then fair market value of the shares of Company stock subject to the grantee's unexercised options and stock appreciation rights exceeds the exercise price or base amount of the options and stock appreciation rights, on such terms as the board of directors determines, or (iii) after giving grantees an opportunity to exercise their outstanding options and stock appreciation rights, terminate any or all unexercised options and stock appreciation rights at such time as the board of directors deems appropriate.

Such assumption, surrender or termination shall take place as of the date of the change of control or such other date as the board of directors may specify.

Under the 2006 Plan, a change of control is generally (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock, (2) the consummation of a merger or consolidation with another corporation where our stockholders, immediately prior to the merger or consolidation, will not beneficially own, immediately after the merger or consolidation, shares entitling such stockholders to more than 50% of all votes to which all stockholders of the surviving corporation would be entitled in the election of directors, (3) the consummation of a sale or other disposition of all or substantially all of our assets, or (4) the consummation of a liquidation or dissolution.

2018 Employee Stock Purchase Plan

Additional long-term equity incentives are provided through the 2018 Employee Stock Purchase Plan, or the ESPP, which became effective in connection with the IPO. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code. Our Compensation Committee has the authority, concurrent with our Board, to administer the ESPP. Under the ESPP, generally all of our regular employees (including our current named executive officers during their employment with us) may participate and may contribute, normally through payroll deductions, up to 15% of their earnings for the purchase of our common stock.

The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, we may specify offerings with a duration of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which our common stock will be purchased for employees participating in the offering. Unless otherwise determined by our Compensation Committee, shares are purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (a) 85% of the fair market value of our common stock on the first date of an offering or (b) 85% of the fair market value of our common stock on the date of purchase.

Equity Compensation Plan Information

The following table provides information as of December 31, 2022 with respect to equity compensation plans (including individual compensation arrangements) under which the Company's common stock is authorized for issuance.

| Plan Category | (a) | (b) | (c) |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| | Number of securities to be issued upon exercise of outstanding options and rights | Weighted average exercise price of outstanding options and rights | Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) |
| Equity compensation plans approved by stockholders: | | | |
| Amended and Restated 2006 Equity Compensation Plan ⁽¹⁾ | 236,167 | \$4.09 | — |
| 2018 Equity Incentive Plan, as amended ⁽²⁾ | 22,699,662 ⁽⁴⁾ | \$3.38 | 8,625,136 |
| 2018 Employee Stock Purchase Plan ⁽³⁾ | — | — | 137,723 |
| Equity compensation plans not approved by stockholders: | | | |
| 2020 Inducement Plan | 1,639,346 | \$1.93 | 2,060,002 |
| Total | 24,575,175 | \$3.28 | 10,822,861 |

(1) Effective following the IPO in August 2018, no additional awards may be granted under the 2006 Plan.

(2) Pursuant to an "evergreen" provision contained in the 2018 Plan, as amended May 3, 2020, on January 1st of each year through January 1, 2028, the number of shares authorized for issuance under the 2018 Plan will be automatically increased by the lesser of: (a) 5.0% of the total number of shares of our capital stock outstanding on December 31st of the preceding calendar year; or (b) such lesser number of shares of our common stock as our Board may designate prior to the applicable January 1st.

(3) Pursuant to an "evergreen" provision contained in the ESPP, on January 1st of each year through January 1, 2028, the number of shares authorized for issuance under the ESPP will be automatically increased by a number equal to the lesser of: (a) 1.0% of the total number of shares of capital stock outstanding on December 31st of the preceding calendar year; (b) 220,000 shares; or (c) such lesser number of shares of our common stock as our Board may designate prior to the applicable January 1st.

(4) Consists of outstanding (i) PSU awards covering an aggregate of 290,000 shares of our common stock, calculated assuming the PSU awards were converted to shares of our common stock using a price of \$1.46 per share, the closing price of our common stock on the Nasdaq Capital Market on December 31, 2022 and (ii) RSU awards covering an aggregate of 265,000 shares of our common stock. The number of shares to be issued in respect of the PSU awards has been calculated based on the assumption that the maximum levels of performance applicable to these awards will be achieved. The weighted average exercise price in column (b) does not take these awards into account.

Director Compensation

Our Compensation Committee reviews the compensation program for our non-employee directors on an annual basis, with the assistance of its independent compensation consultant, who prepares a comprehensive assessment of our non-employee director compensation program. Such assessment includes comparing our current non-employee director compensation against competitive market practices using the same compensation peer group used for executive compensation purposes and an update on recent trends in director compensation. Following such review, the Compensation Committee approves any updates to the non-employee director compensation policy.

Our non-employee director compensation policy was originally adopted by our Board in July 2018 and has subsequently been amended, most recently in November 2021. For 2022, this compensation policy provided that each such non-employee director would receive the following compensation for service on our Board:

- an annual cash retainer of \$40,000;
- an additional annual cash retainer of \$20,000 for service as chairman of the board of directors;
- an additional annual cash retainer of \$20,000, \$15,000, \$10,000 and \$10,000 for service as chair of the Audit Committee, the Compensation Committee, the Nominating and Corporate Governance Committee and the Science and Technology Committee, respectively;

- an additional annual cash retainer of \$10,000, \$7,500, \$5,000 and \$5,000 for service as a member of the Audit Committee, Compensation Committee, the Nominating and Corporate Governance Committee and the Science and Technology Committee, respectively (not applicable to committee chairs);
- an initial option grant to purchase common stock with an aggregate Black-Scholes option value of \$247,500 on the date of each such non-employee director's appointment to our Board; and
- an annual option grant to purchase common stock with an aggregate Black-Scholes option value of \$165,000 on the date of each of our annual stockholder meetings.

Each of the option grants described above will be granted under our 2018 Plan. Each such option grant will vest and become exercisable subject to the director's continuous service to us, provided that each option will vest in full upon a change in control (as defined in the 2018 Plan). The term of each option will be 10 years, subject to earlier termination as provided in the 2018 Plan, provided that upon a termination of service other than for death, disability or cause, the post-termination exercise period will be 12 months from the date of termination. An eligible director may decline all or any portion of his or her compensation by giving notice to the Company prior to the date cash may be paid or equity awards are to be granted, as the case may be.

We have reimbursed and will continue to reimburse all of our non-employee directors for their reasonable out-of-pocket expenses incurred in attending board of directors and committee meetings. Dr. Holmlin, our President and Chief Executive Officer, is also a director but did not receive any additional compensation for his service as a director.

The following table sets forth in summary form information concerning the compensation of our non-employee directors during the year ended December 31, 2022:

| NAME | FEES EARNED OR PAID IN CASH | OPTION AWARDS \$(⁽¹⁾) | TOTAL (\$) |
|-------------------------------------------------|-----------------------------|------------------------------------|------------|
| David L. Barker, Ph.D. | 85,000 | 164,422 | 249,422 |
| Yvonne Linney, Ph.D. | 45,000 | 164,422 | 209,422 |
| Albert Luderer, Ph.D. | 65,000 | 164,422 | 229,422 |
| Hannah Mamuszka | 47,500 | 164,422 | 211,922 |
| Aleksandar Rajkovic, M.D., Ph.D. ⁽²⁾ | 39,125 | 412,054 | 451,179 |
| Christopher Twomey | 60,000 | 164,422 | 224,422 |
| Kristiina Vuori, M.D., Ph.D. | 57,500 | 164,422 | 221,922 |
| Vincent Wong, J.D. | 50,000 | 164,422 | 214,422 |

(1) The amounts reported reflect the aggregate grant date fair value of each equity award granted to our non-employee directors during the fiscal year ended December 31, 2022, as determined in accordance with FASB ASC 718. The valuation assumptions used in calculating these amounts are included in the notes to our consolidated financial statements included elsewhere in the Annual Report. As required by SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. These amounts do not reflect the actual economic value that will be realized by our non-employee directors upon the vesting of the stock options, the exercise of the stock options or the sale of the common stock underlying such stock options. As of December 31, 2022, the aggregate number of shares outstanding under all options to purchase our common stock held by our non-employee directors were: Dr. Barker 258,374; Dr. Linney 318,094; Dr. Luderer 298,639; Ms. Mamuszka 338,094; Dr. Rajkovic 359,408; Mr. Twomey 289,598; Dr. Vuori 287,445; and Mr. Wong 286,476. As of December 31, 2022, none of our non-employee directors held other unvested stock awards.

(2) Dr. Rajkovic was appointed to our Board in February 2022.

ITEM 402(v) PAY VERSUS PERFORMANCE DISCLOSURE

The disclosure included in this section is prescribed by Securities and Exchange Commission (“SEC”) rules and does not necessarily align with how the Company or the Compensation Committee view the link between the Company’s performance and named executive officer (“NEO”) pay. This disclosure is intended to comply with the requirements of Section 953(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 402(v) of Regulation S-K applicable to “smaller reporting companies” and provides the following information regarding the relationship between executive “compensation actually paid” (as determined in accordance with the rules prescribed under Item 402(v) of Regulation S-K) to (i) our principal executive officer (“PEO”) during each of 2021 and 2022, and (ii) our other non-PEO NEOs (determined as an average, as set forth below) during each of 2021 and 2022, and our financial performance. For information about our executive compensation program and how we align executive compensation with Company performance, refer to the “Executive and Director Compensation” section of this proxy statement.

Required Tabular Disclosure of Pay Versus Performance

The amounts set forth below under the headings “Compensation Actually Paid to PEO” and “Average Compensation Actually Paid to Non-PEO NEOs” have been calculated in a manner consistent with Item 402(v) of Regulation S-K. Use of the term “compensation actually paid” (or “CAP”) is required by the SEC’s rules and as a result of the calculation methodology required by the SEC, such amounts differ from compensation actually received by the individuals and the compensation decisions described in the “Executive and Director Compensation” section above.

The following table provides the information required for our NEOs for each of the fiscal years ended December 31, 2022 and December 31, 2021 along with the financial measures required for each fiscal year:

| Year | Summary Compensation Table Total for PEO ⁽¹⁾ \$ | Compensation Actually Paid to PEO ⁽²⁾⁽³⁾ \$ | Average Summary Compensation Table Total for Non-PEO NEOs ⁽⁴⁾ \$ | Average Compensation Actually Paid to Non-PEO NEOs ⁽²⁾⁽³⁾⁽⁴⁾ \$ | Value of Initial Fixed \$100 Investment Based on: Total Shareholder Return ⁽⁵⁾ \$ | Net Loss (in millions) ⁽⁶⁾ \$ |
|------|---------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|
| 2022 | 2,766,572 | 740,062 | 4,721,149 | (1,172,710) | 47.40 | (132.6) |
| 2021 | 7,580,471 | 5,353,877 | 2,658,190 | 2,302,834 | 97.08 | (72.4) |

- (1) Our PEO for both fiscal years is R. Erik Holmlin, Ph.D., our Chief Executive Officer. The dollar amounts reported in this column are the amounts of total compensation reported in the Summary Compensation Table for our PEO for each relevant year.
- (2) Deductions from, and additions to, total compensation reported in the Summary Compensation Table by year to calculate CAP (in accordance with Item 402(v) of Regulation S-K) include:

| | 2022 | | 2021 | |
|-------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------|---------------|----------------------|
| | PEO | Average Non-PEO NEOs | PEO | Average Non-PEO NEOs |
| Total Compensation from Summary Compensation Table | \$ 2,766,572 | \$ 4,721,149 | \$ 7,580,471 | \$ 2,658,190 |
| Adjustments for Pension | | | | |
| Adjustment Summary Compensation Table Pension | \$ — | \$ — | \$ — | \$ — |
| Amount added for current year service cost | \$ — | \$ — | \$ — | \$ — |
| Amount added for prior service cost impacting current year | \$ — | \$ — | \$ — | \$ — |
| Total Adjustments for Pension | \$ — | \$ — | \$ — | \$ — |
| Adjustments for Equity Awards* | | | | |
| Deduct: Grant date fair values in the Summary Compensation Table | \$(1,932,000) | \$(4,209,406) | \$(6,919,630) | \$(2,324,715) |
| Add: Year-end fair value of unvested awards granted in the current year | \$ 1,477,244 | \$ 422,070 | \$ 3,500,857 | \$ 1,222,555 |
| Add: Year-over-year difference of year-end fair values for unvested awards granted in prior years | \$(1,629,853) | \$ (289,317) | \$ (46,597) | \$ (2,497) |
| Add: Fair values at vest date for awards granted and vested in current year | \$ 567,094 | \$ 227,002 | \$ 690,165 | \$ 122,448 |
| Add: Difference in fair values between prior year-end fair values and vest date fair values for awards granted in prior years | \$ (508,995) | \$(1,767,929) | \$ 548,611 | \$ 626,852 |
| Deduct: Forfeitures during current year equal to prior year-end fair value | \$ — | \$ (267,278) | \$ — | \$ — |
| Add: Dividends or dividend equivalents not otherwise included in total compensation | \$ — | \$ — | \$ — | \$ — |
| Total Adjustments for Equity Awards | \$(2,026,511) | \$(5,893,858) | \$(2,226,594) | \$ (355,356) |
| Compensation Actual Paid (CAP) | \$ 740,062 | \$(1,172,710) | \$ 5,353,877 | \$ 2,302,834 |

- * Amount of equity award adjustments may differ from amount reported in the table above due to rounding.
- (3a) The following summarizes the valuation assumptions used for stock option awards included as part of CAP:
- Expected life of each stock option is based on the “simplified method” using an average of the remaining vest and remaining term, as of the vest/fiscal year end (“FYE”) date.
 - Strike price is based on each grant date closing price and asset price is based on each vest/FYE closing price.
 - Risk free rate is based on the Treasury Constant Maturity rate closest to the remaining expected life as of the vest/FYE date.
 - Historical volatility is based on daily price history for each expected life (years) prior to each vest/FYE date. Closing prices provided by S&P Capital IQ are adjusted for dividends and splits.
 - Represents annual dividend yield on each vest/FYE date.
- (3b) The following table illustrates the valuation assumptions as of the vesting date for awards that vested in each of 2021 and 2022:

| | For Stock Options Vesting in | | | For Restricted Shares and Restricted Stock Units |
|-------------------------|------------------------------|-------------------|-------------------------------------------|-----------------------------------------------------|
| | 2022 | 2021 | | 2022 |
| Expected Volatility | 134.19% - 171.98% | 165.74% - 186.55% | Weighted Average Fair Value at vesting | \$2.01 |
| Expected dividend yield | 0% | 0% | | |
| Expected term, in years | 3.0 – 5.0 years | 3.5 – 5.0 years | | |
| Risk-free interest rate | 0.97% - 4.48% | 0.17% - 1.22% | | |

- (3c) PSUs valued as part of CAP reflect expected performance at each valuation date. No PSUs vested in 2021 or 2022.
- (4) Reflects the average Summary Compensation Table total compensation and average CAP, respectively, for the following NEOs, as a group, in each relevant year:
2022: Mark Oldakowski, Alka Chaubey, and Soheil Shams
2021: Mark Oldakowski and Richard Shippy
- (5) Total shareholder return (“TSR”) is determined based on the value of an initial fixed investment of \$100 on December 31, 2020. Cumulative TSR is calculated by dividing the sum of the cumulative amount of dividends for the measurement period, assuming dividend reinvestment, and the difference between the Company’s share price at the end and the beginning of the measurement period by the Company’s share price at the beginning of the measurement period.
- (6) The dollar amounts reported represent the amount of net loss reflected in the Company’s audited financial statements for the applicable year.

Required Disclosure of Relationships Between CAP and Financial Performance Measures

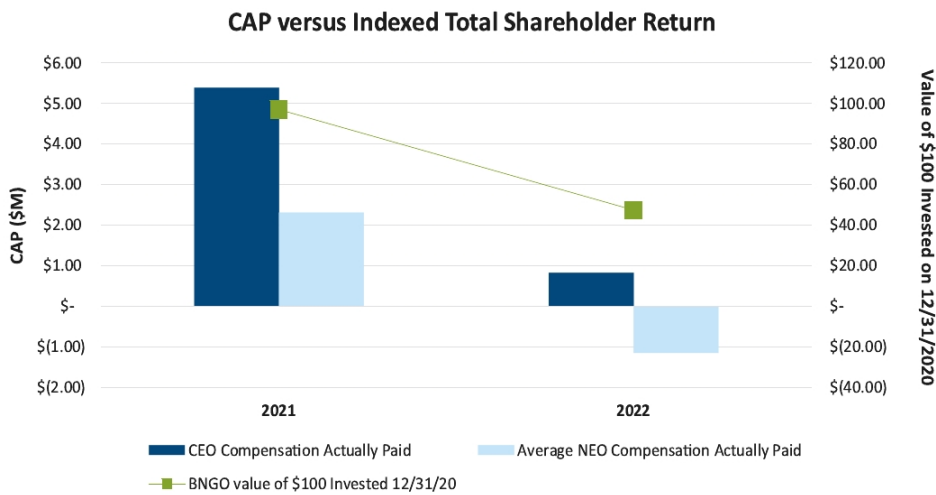
As required by Item 402(v) of Regulation S-K, we are providing the descriptions below of the relationship between CAP (as calculated in accordance with the SEC rules and described above) and the following measures:

- Bionano’s cumulative TSR, measured starting from December 31, 2020 for each covered fiscal year; and
- Bionano’s Net Loss.

As noted above, CAP for purposes of the tabular disclosure and the following graphs was calculated in accordance with SEC rules and does not fully represent the actual final amount of compensation earned by or actually paid to our NEOs during the applicable years.

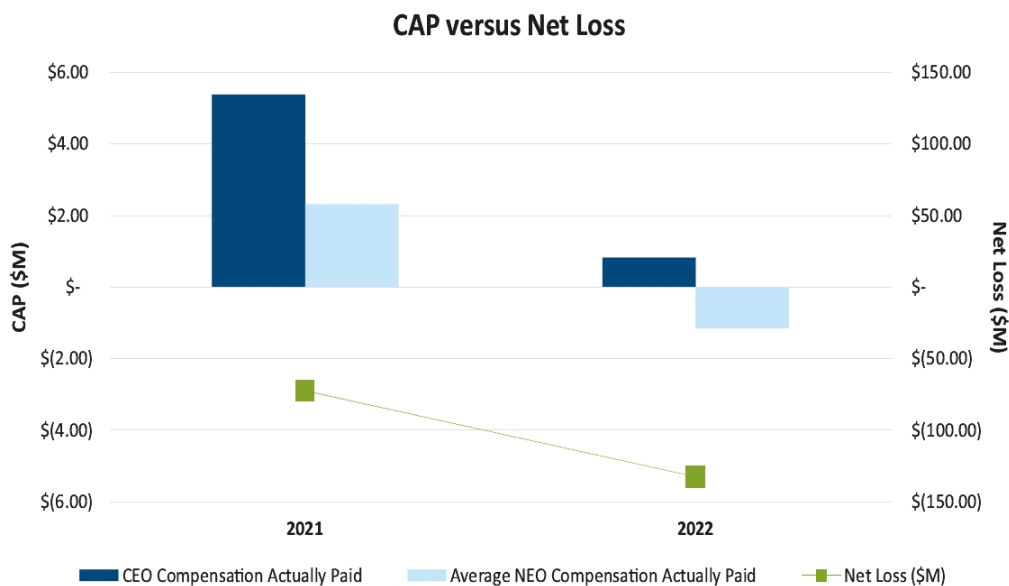
CAP and Bionano’s Cumulative TSR

The graph below shows the relationship between the CAP for our PEO and the average CAP for our non-PEO NEOs, on the one hand, to the Company’s cumulative TSR over the two years presented in the table, on the other.



CAP and Bionano’s Net Loss

The graph below shows the relationship between CAP for our PEO and the average CAP for our non-PEO NEOs and net loss reported for the two years presented in the table.



All information provided above under the “Item 402(v) Pay Versus Performance” heading will not be deemed to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing, except to the extent the Company specifically incorporates such information by reference.

RELATED-PERSON TRANSACTIONS POLICY AND PROCEDURES

In 2018, the Company adopted a written Related-Person Transactions Policy that sets forth the Company's policies and procedures regarding the identification, review, consideration and approval or ratification of "related-persons transactions." For purposes of the Company's policy only, a "related-person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which the Company and any "related person" are participants involving an amount that exceeds \$120,000.

Transactions involving compensation for services provided to the Company as an employee, director, consultant or similar capacity by a related person are not covered by this policy. A related person is any executive officer, director, or more than 5% stockholder of the Company, including any of their immediate family members, and any entity owned or controlled by such persons.

Under the policy, where a transaction has been identified as a related-person transaction, management must present information regarding the proposed related-person transaction to the Audit Committee (or, where Audit Committee approval would be inappropriate, to another independent body of the Board) or the Board for consideration and approval or ratification. The presentation must include a description of, among other things, all of the parties, the direct and indirect interests of the related parties, the purpose of the transaction, the material facts, the benefits of the transaction to us and whether any alternative transactions are available, an assessment of whether the terms are comparable to the terms available from unrelated third parties and management's recommendation. To identify related-person transactions in advance, the Company relies on information supplied by its executive officers, directors and certain significant stockholders. In considering related-person transactions, the Audit Committee takes into account the relevant available facts and circumstances including, but not limited to (a) the risks, costs and benefits to the Company, (b) the impact on a director's independence in the event the related person is a director, immediate family member of a director or an entity with which a director is affiliated, (c) the terms of the transaction, (d) the availability of other sources for comparable services or products and (e) the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

In the event a director has an interest in the proposed transaction, the director must recuse himself or herself from the deliberations and approval. The policy requires that, in determining whether to approve, ratify or reject a related-person transaction, the Audit Committee consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, the best interests of the Company and its stockholders, as the Audit Committee determines in the good faith exercise of its discretion.

CERTAIN RELATED-PERSON TRANSACTIONS

Other than compensation arrangements for our directors and executive officers, which are described above under the heading "Executive and Director Compensation" and except as set forth below, there were no transactions since January 1, 2021 to which we were a party or will be a party, in which:

- the amounts involved exceeded or will exceed the lesser of (a) \$120,000 or (b) 1% of the average of our total assets for the fiscal years ended December 31, 2022 or 2021; and
- any of our directors, executive officers or holders of more than 5% of our capital stock, or any member of the immediate family of, or person sharing the household with, the foregoing persons, had or will have a direct or indirect material interest.

Through our acquisition of BioDiscovery, LLC in October 2021, the Company assumed a building lease with Tesa Beach, LLC, an entity owned by Dr. Shams, our former Chief Informatics Officer. In 2022, we paid an aggregate amount of \$529,000 under such lease.

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our Bylaws. These agreements, among other things, require us to indemnify our directors and executive officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or executive officer in any action

or proceeding arising out of their services as one of our directors or executive officers or as a director or executive officer of any other company or enterprise to which the person provides services at our request. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our Certificate of Incorporation and Bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may decline in value to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are Bionano stockholders will be “householding” the Company’s proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders.

Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, please notify your broker or Bionano. Direct your written request to the attention of the Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121 or call us at 858-888-7600. Stockholders who currently receive multiple copies of the Notice of Internet Availability of Proxy Materials at their addresses and would like to request “householding” of their communications should contact their brokers.

OTHER MATTERS

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the Annual Meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment. This discretionary authority is granted when you sign the form of proxy.

By Order of the Board of Directors

/s/ R. Erik Holmlin, Ph.D.

R. Erik Holmlin, Ph.D.
Secretary

April 28, 2023

A copy of the Company's Annual Report to the Securities and Exchange Commission on Form 10-K for the fiscal year ended December 31, 2022 is available without charge upon written request to: Secretary of Bionano Genomics, Inc., 9540 Towne Centre Drive, Suite 100, San Diego, CA 92121.

APPENDIX A

FORM OF
CERTIFICATE OF AMENDMENT TO THE
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION
OF
BIONANO GENOMICS, INC.

Bionano Genomics, Inc. (the “*Company*”), a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the “*DGCL*”), hereby certifies that:

ONE: The name of the Company is Bionano Genomics, Inc. The Company’s Certificate of Incorporation was originally filed with the Secretary of State of the State of Delaware on August 16, 2007 under the name of BioNanomatrix, Inc.

TWO: The Board of Directors of the Company (the “*Board*”), acting in accordance with the provisions of Sections 141 and 242 of the DGCL, adopted resolutions amending the Company’s Amended and Restated Certificate of Incorporation, as amended (the “*Charter*”), to add the following paragraph at the end of Article IV, Section A, as follows:¹

Effective as of the effective time of 5:00 p.m., Eastern Time, on [***DATE***]² (the “*Effective Time*”), each [five (5) / six (6) / seven (7) / eight (8) / nine (9) / ten (10)] shares of the Company’s Common Stock, par value \$0.0001 per share, issued and outstanding immediately prior to the Effective Time shall, automatically and without any action on the part of the Company or the respective holders thereof, be combined into one (1) share of Common Stock (the “*Reverse Split*”); *provided, however*, no fractional shares of Common Stock shall be issued as a result of the Reverse Split and, in lieu thereof, upon receipt after the Effective Time by the exchange agent selected by the Company of a properly completed and duly executed transmittal letter and, where shares are held in certificated form, the surrender of the stock certificate(s) formerly representing shares of pre-Reverse Split Common Stock, any stockholder who would otherwise be entitled to a fractional share of post-Reverse Split Common Stock as a result of the Reverse Split, following the Effective Time (after taking into account all fractional shares of post-Reverse Split Common Stock otherwise issuable to such stockholder), shall be entitled to receive a cash payment (without interest) equal to the fractional share of post-Reverse Split Common Stock to which such stockholder would otherwise be entitled multiplied by the average of the closing sales prices of a share of the Company’s Common Stock (as adjusted to give effect to the Reverse Split) on The Nasdaq Stock Market for each of the five (5) consecutive trading days immediately preceding the date this Certificate of Amendment is filed with the Secretary of State of the State of Delaware. Each stock certificate that, immediately prior to the Effective Time, represented shares of pre-Reverse Split Common Stock shall, from and after the Effective Time, automatically and without any action on the part of the Company or the respective holders thereof, represent that number of whole shares of post-Reverse Split Common Stock into which the shares of pre-Reverse Split Common Stock represented by such certificate shall have been combined (as well as the right to receive cash in lieu of any fractional shares of post-Reverse Split Common Stock as set forth above); *provided, however*, that each holder of record of a certificate that represented shares of pre-Reverse Split Common Stock shall receive, upon surrender of such certificate, a new certificate representing the number of whole shares of post-Reverse Split Common Stock into which the shares of pre-Reverse Split Common Stock represented by such certificate shall have been combined pursuant to the Reverse Split, as well as any cash in lieu of fractional shares of post-Reverse Split Common Stock to which

¹ These amendments approve the combination of any whole number of shares of the Company’s Common Stock between and including five (5) and ten (10) into one (1) share of the Company’s Common Stock. By these amendments, the stockholders would approve each of the alternate amendments proposed by the Company’s Board of Directors. If the reverse stock split proposal is approved by the stockholders, the Certificate of Amendment filed with the Secretary of State of the State of Delaware will include only that reverse stock split ratio determined by the Company’s Board of Directors to be in the best interests of the Company and its stockholders. The other amendments will be abandoned pursuant to Section 242(c) of the General Corporation Law of the State of Delaware. The Company’s Board of Directors may also elect not to effect any reverse stock split, in which case all proposed alternate amendments will be abandoned.

² Insert next business day after filing with the Secretary of State of the State of Delaware.

such holder may be entitled as set forth above. The Reverse Split shall be effected on a record holder-by-record holder basis, such that any fractional shares of post-Reverse Split Common Stock resulting from the Reverse Split and held by a single record holder shall be aggregated.

THREE: Thereafter, pursuant to a resolution of the Board, this Certificate of Amendment was submitted to the stockholders of the Company for their approval, and was duly adopted in accordance with the provisions of Section 242 of the DGCL.

[Signature Page Follows]

IN WITNESS WHEREOF, the Company has caused this Certificate of Amendment to be signed by its President and Chief Executive Officer this _____ day of _____, _____.

BIONANO GENOMICS, INC.

By: _____

Name:

Title:

A-3



BIONANO GENOMICS, INC.
 9540 TOWNE CENTRE DRIVE
 SUITE 100
 SAN DIEGO, CA 92121



**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 June 13, 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/BNGO2023

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 June 13, 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.

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

V13744-P93195

KEEP THIS PORTION FOR YOUR RECORDS

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

DETACH AND RETURN THIS PORTION ONLY

BIONANO GENOMICS, INC.

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

1. Election of Class II Directors

| | | |
|--------------------------|--------------------------|--------------------------|
| For All | Withhold All | For All Except |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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) Albert Luderer, Ph.D.
 02) Kristiina Vuori, M.D., Ph.D.
 03) Hannah Mamuszka

The Board of Directors recommends you vote FOR the following proposals 2, 3, 4 and 5:

- | | For | Against | Abstain |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| 2. Approval, on an advisory basis, of the compensation of the Company's named executive officers, as disclosed in the accompanying proxy statement. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. To ratify the selection of BDO USA, LLP by the Audit Committee of the Board of Directors to serve as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2023. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. To approve a series of alternate amendments to the Company's Amended and Restated Certificate of Incorporation, as amended, to effect, at the option of our Board of Directors, a reverse stock split of our common stock at a ratio between 1-for-5 and 1-for-10, inclusive, as determined by our Board of Directors in its sole discretion. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. To approve the adjournment of the Annual Meeting, if necessary, to solicit additional proxies if there are not sufficient votes in favor of Proposal 4. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

NOTE: The holders of your proxy may vote in their discretion upon any other business that may properly come before the meeting or any adjournment or postponement thereof.

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

V13745-P93195

BIONANO GENOMICS, INC.
Annual Meeting of Stockholders
June 14, 2023, 10:00 AM (Pacific Time)
This proxy is solicited on behalf of the Board of Directors

The undersigned hereby appoints R. Erik Holmlin, Ph.D. and Christopher Stewart, and each or either of them, as the true and lawful attorneys of the undersigned, with full power of substitution and revocation, and authorizes them, and each of them, to represent and to vote, as designated on the reverse side of this ballot, all the shares of capital stock of Bionano Genomics, Inc. which the undersigned is entitled to vote at the Annual Meeting of Stockholders to be held virtually, via live webcast at www.virtualshareholdermeeting.com/BNGO2023, on Wednesday, June 14, 2023, at 10:00 AM Pacific Time, and any adjournment or postponement thereof.

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.

In their discretion, the holders of your proxy are authorized to vote upon such other business as may properly come before the meeting.

Votes must be received by 11:59 P.M., Eastern Time, on June 13, 2023.

Continued and to be signed on reverse side