

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

**FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Bionano Genomics, Inc.

(Exact name of registrant as specified in its charter)

Delaware (State or Other Jurisdiction of Incorporation or Organization)	3826 (Primary Standard Industrial Classification Code Number)	26-1756290 (I.R.S. Employer Identification Number)
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Bionano Genomics, Inc.
9540 Towne Centre Drive, Suite 100
San Diego, California 92121
(858) 888-7600

(Address, including zip code, and telephone number, including area code of registrant's principal executive offices)

R. Erik Holmlin, Ph.D.
President and Chief Executive Officer
Bionano Genomics, Inc.
9540 Towne Centre Drive, Suite 100
San Diego, California 92121
(858) 888-7600

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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From time to time after the effective date of this Registration Statement

(Approximate date of commencement of proposed sale to the public)

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. Neither we nor the Selling Securityholder may sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS

SUBJECT TO COMPLETION, DATED JUNE 10, 2024



Up to 12,250,000 Shares of Common Stock

In May 2024, we issued and sold pursuant to a Securities Purchase Agreement, dated May 24, 2024 (the “Purchase Agreement”), with certain accredited investors (the “Selling Securityholders”) in a private placement, 2,250,000 shares (the “Upfront Shares”) of our common stock, \$0.0001 par value per share (“common stock”), and \$20.0 million aggregate principal amount of senior secured convertible debentures due May 24, 2026 (the “Debentures”) initially convertible into 10,000,000 shares of our common stock. This prospectus relates to the resale of up to 12,250,000 shares of our common stock by the Selling Securityholder comprising (i) up to 2,250,000 Upfront Shares and (ii) up to 10,000,000 shares of common stock issuable upon conversion of the Debentures (the “Conversion Shares” and, together with the Upfront Shares, the “Shares”). We will not receive any proceeds from the resale by the Selling Securityholder of the Shares described in this prospectus.

Our registration of the securities covered by this prospectus does not mean that the Selling Securityholder will offer or sell any of the Shares. See the section entitled “Plan of Distribution” for additional information about how the Selling Securityholder may sell or otherwise dispose the Shares. See the section entitled “Selling Securityholders” for additional information regarding the Selling Securityholders.

Our common stock is listed on The Nasdaq Capital Market (“Nasdaq”) under the symbol “BNGO.” On June [___], 2024, the last reported sale price on Nasdaq of our common stock was \$[___] per share.

We are a “smaller reporting company” as defined under the federal securities laws and, as such, have elected to comply with certain reduced reporting requirements for this prospectus and may elect to do so in future filings.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading “Risk Factors” on page 3 of this prospectus as well as those contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2024.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”) using the “shelf” registration process. Under this shelf registration process, the Selling Securityholders may, from time to time, sell the securities offered by them described in this prospectus. We will not receive any proceeds from the sale of the securities offered by the Selling Securityholders described in this prospectus.

We have not, and the Selling Securityholders have not, authorized anyone to provide you with information different than or inconsistent with the information contained in or incorporated by reference in this prospectus, any applicable prospectus supplement or any free writing prospectus that we have authorized for use in connection with this offering. Neither we nor the Selling Securityholders take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and the Selling Securityholders are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information contained in or incorporated by reference in this prospectus, any applicable prospectus supplement or in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents, regardless of the time of delivery of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus, any applicable prospectus supplement, any free writing prospectus that we have authorized for use in connection with this prospectus and the documents incorporated by reference in this prospectus, any applicable prospectus supplement, any free writing prospectus that we have authorized for use in connection with this prospectus, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections titled “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.”

The Selling Securityholders are offering to sell, and seeking offers to buy, the securities offered by the Selling Securityholders described in this prospectus only in jurisdictions where offers and sales are permitted. The distribution of this prospectus and this offering of our securities in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, this offering of our securities and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless otherwise mentioned or unless the context indicates otherwise, all references in this prospectus to “Bionano,” “the Company,” “we,” “us,” “our” and similar references refer to Bionano Genomics, Inc. and its subsidiaries or, as the context may require, Bionano Genomics, Inc. only. “Bionano Laboratories,” “BioDiscovery” and “Purigen” refer to our wholly owned subsidiaries, Lineagen, Inc. (doing business as Bionano Laboratories), BioDiscovery, LLC and Purigen Biosystems, Inc., respectively.

Our design logo, “Bionano,” and our other registered and common law trade names, trademarks and service marks are the property of Bionano Genomics, Inc. The trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. We do not intend our use or display of other companies’ trademarks, trade names or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies or products.

PROSPECTUS SUMMARY

The following summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our securities. For a more complete understanding of our company and this offering, you should read and consider carefully the more detailed information included or incorporated by reference in this prospectus, including the factors described under the heading “Risk Factors.”

Company Overview

We are a provider of genome analysis solutions that can enable researchers and clinicians to reveal answers to challenging questions in biology and medicine. Our mission is to transform the way the world sees the genome through OGM solutions, diagnostic services and software. We offer OGM solutions for applications across basic, translational and clinical research. We also offer an industry-leading, platform-agnostic genome analysis software solution and nucleic acid extraction and purification solutions using proprietary isotachopheresis (ITP) technology. Through our Lineagen, Inc. d/b/a Bionano Laboratories business, we also offer OGM-based diagnostic testing services.

Corporate Information

We were formed in January 2003 as BioNanomatrix LLC, a Delaware limited liability company. In August 2007, we became BioNanomatrix Inc., a Delaware corporation. In October 2011, we changed our name to BioNano Genomics, Inc., and in July 2018, we changed our name to Bionano Genomics, Inc.

Our principal executive offices are located at 9540 Towne Centre Drive, Suite 100, San Diego, California 92121, and our telephone number is (858) 888-7600. Our website address is www.bionanogenomics.com and we regularly post copies of our press releases as well as additional information about us on our website. Information contained in, or that can be accessed through, our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus or in deciding whether to purchase our securities.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company” meaning that the market value of our common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and the market value of our common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter. Accordingly, we may provide less public disclosure than larger public companies, including the inclusion of only two years of audited financial statements and only two years of management’s discussion and analysis of financial condition and results of operations disclosure. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

THE OFFERING

Securities Offered by the Selling Securityholder	Up to 12,250,000 shares of our common stock comprising (i) up to 2,250,000 Upfront Shares and (ii) up to 10,000,000 Conversion Shares issuable upon conversion of the Debentures
Use of Proceeds	We will not receive any proceeds from the sale of the Shares by the Selling Securityholder.
Risk Factors	Investing in our Shares involves a high degree of risk. See the section titled “Risk Factors” on page 3 of this prospectus and under similar headings in other documents incorporated by reference herein.
Nasdaq Capital Market Symbol	Our common stock is listed for trading on the Nasdaq Capital Market under the symbol “BNGO.”

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the following risk factors and the risk factors discussed under the section titled “Risk Factors” contained in our most recent Annual Report on Form 10-K and in our most recent Quarterly Report on Form 10-Q, as updated by any amendments thereto reflected in subsequent filings, which are incorporated by reference into this prospectus in their entirety, together with all of the other information contained in this prospectus or incorporated by reference into this prospectus, any prospectus supplement and any free writing prospectus that we may authorize. The risks and uncertainties described in these documents are not the only ones we face. Other risks and uncertainties, including those that we do not currently consider material, may impair our business. If any of the risks incorporated by reference actually occur, our business, financial condition, operating results or cash flows could be materially adversely affected. This could cause the value of our securities to decline, and you may lose all or part of your investment.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference herein and therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These statements are based on our management’s current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the sections titled “Business,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” incorporated by reference from our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q filed with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC.

Any statements in this prospectus or incorporated by reference herein or therein about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward-looking statements. Within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, these forward-looking statements may include, but are not limited to, statements regarding:

- our ability to finance our operations and business initiatives, including our ability to successfully implement our strategic restructuring plan and other cost-reduction activities;
- the size and growth potential of the markets for our products, and our ability to serve those markets;
- the rate and degree of market acceptance of our products;
- our ability to manage the growth of our business and integrate acquired businesses;
- our ability to expand our commercial organization to address effectively existing and new markets that we intend to target;
- the impact from future regulatory, judicial, and legislative changes or developments in the U.S. and foreign countries;
- our ability to successfully execute our strategy and meet anticipated goals and milestones;
- our ability to compete effectively in a competitive industry;
- the introduction of competitive technologies or improvements in existing technologies and the success of any such technologies;
- the performance of our third-party contract sales organizations, suppliers and manufacturers;
- our ability to attract and retain key scientific or management personnel;
- the accuracy of our estimates regarding expenses, future revenues, reimbursement rates, capital requirements and needs for additional financing;
- the impact of geopolitical and macroeconomic developments, such as the ongoing conflict between Ukraine and Russia, the Israel-Hamas war, related sanctions and global pandemics on our business and operations, as well as the business or operations of our suppliers, customers, manufacturers, research partners and other third parties with whom we conduct business and our expectations with respect to the duration of such impacts and the resulting effects on our business;
- our ability to realize the anticipated benefits and synergies of our recent and any future acquisitions or other strategic transactions;
- our anticipated cash runway, our ability to continue as a going concern and our ability to obtain funding for our operations;
- our ability to attract collaborators and strategic partnerships; and
- other uncertainties affecting us including those described in the sections titled “Risk Factors” in this prospectus, in our most recent Annual Report on Form 10-K, in our Quarterly Reports on Form 10-Q and in our Current Reports on Form 8-K filed with the SEC.

In some cases, you can identify forward-looking statements by terminology such as “anticipate,” “believe,” “continue,” “could,” “estimate,” “expects,” “intend,” “may,” “might,” “plan,” “potential,” “predict,”

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“project,” “should,” “will,” “would” or the negative or plural of those terms, and similar expressions intended to identify statements about the future, although not all forward-looking statements contain these words. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

You should refer to the risks and uncertainties described in the sections titled “Risk Factors” in this prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus, for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. Given these risks, uncertainties and other factors, many of which are beyond our control, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate, and you should not place undue reliance on these forward-looking statements. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in the future.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale by the Selling Securityholder of the Shares in this offering. The Selling Securityholders will receive all of the proceeds from the sale of the Shares hereunder.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock, certain provisions of our certificate of incorporation and bylaws, and certain provisions of Delaware law are summaries. The following description is not complete and is subject to and qualified in its entirety by our certificate of incorporation and bylaws, which are filed as exhibits to the registration statement of which this prospectus is a part, as well as the relevant provisions of the General Corporation Law of the State of Delaware.

As of the date of this prospectus, our certificate of incorporation authorized us to issue 400,000,000 shares of common stock, par value \$0.0001 per share, and 10,000,000 shares of preferred stock, par value \$0.0001 per share.

Common Stock

Voting Rights

Our common stock is entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and does not have cumulative voting rights. Our amended and restated certificate of incorporation, as amended, establishes a classified board of directors that is divided into three classes with staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of our stockholders, with the directors in the other classes continuing for the remainder of their respective three-year terms.

Economic Rights

Except as otherwise expressly provided in our certificate of incorporation or required by applicable law, all shares of common stock have the same rights and privileges and rank equally, share ratably, and are identical in all respects for all matters, including those described below.

Dividends. Subject to preferences that may be applicable to any then-outstanding preferred stock, the holders of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation Rights. In the event of our liquidation, dissolution or winding-up, holders of our common stock are entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

No Preemptive or Similar Rights

The holders of our shares of common stock are not entitled to preemptive rights, and are not subject to conversion, redemption or sinking fund provisions. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Preferred Stock

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control that may otherwise benefit holders of our common stock and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Anti-Takeover Provisions

We are subject to Section 203 of the General Corporation Law of the State of Delaware. Section 203 generally prohibits a public Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the commencement of the transaction, excluding for purposes of determining the number of shares outstanding (but not the outstanding voting stock owned by the interested stockholder) (a) shares owned by persons who are directors and also officers and (b) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the consummation of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 of the DGCL defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, lease, exchange, mortgage, pledge, transfer or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; and
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Certificate of Incorporation and Bylaws to be in Effect upon the Closing of this Offering

Among other things, our amended and restated certificate of incorporation, as amended, and amended and restated bylaws:

- do not provide stockholders with cumulative voting rights such that stockholders holding a majority of the voting power of our shares of common stock may be able to elect all of our directors;
- provide for stockholder actions to be taken at a duly called meeting of stockholders and not by written consent;
- provide that a special meeting of stockholders may only be called by a majority of our board of directors, the chair of our board of directors or our chief executive officer;
- establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- divide our board of directors into three classes with staggered three-year terms;

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- provide that the authorized number of directors may be changed only by resolution adopted by a majority of the authorized number of directors constituting the board of directors;
- provide that the board of directors or any individual director may only be removed with cause and the affirmative vote of the holders of at least 66 2/3% of the voting power of all of our then outstanding common stock;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law or subject to the rights of holders of preferred stock as designated from time to time, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors or officers to us or our stockholders, (iii) any action asserting a claim against us arising pursuant to any provision of the General Corporation Law of the State of Delaware or our certificate of incorporation or bylaws, or (iv) any action asserting a claim against us governed by the internal affairs doctrine (these choice of forum provisions do not apply to suits brought to enforce a duty or liability created by the Securities Act, the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction).

The foregoing provisions make it difficult for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Section 203 of the General Corporation Law of the State of Delaware

We are subject to Section 203 of the General Corporation Law of the State of Delaware, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, subject to certain exceptions.

Transfer Agent and Registrar

Our transfer agent and registrar for our common stock is Equiniti Trust Company, LLC.

Listing on the Nasdaq Capital Market

Our common stock is listed on the Nasdaq Capital Market under the symbol “BNGO.”

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a summary of certain material U.S. federal income tax considerations for a U.S. holder (as defined below) generally applicable to the ownership and disposition of the Shares.

This summary is based upon provisions of the Internal Revenue Code of 1986, as amended (the “Code”), applicable U.S. Treasury Regulations, administrative rulings, and judicial decisions in effect as of the date hereof, any of which may subsequently be changed or interpreted differently, possibly retroactively, so as to result in U.S. federal income tax consequences different from those discussed below. This summary applies only to the Shares that are held as “capital assets” within the meaning of Section 1221 of the Code (generally, property held for investment) by a U.S. holder that purchased the Shares on original issuance at the “issue price”. This summary is general in nature, and does not address all aspects of U.S. federal income taxation, any estate or gift tax consequences, any alternative minimum tax consequences, the Medicare contribution tax on net investment income, the special tax accounting rules under Section 451(b) of the Code, or any state, local, or non-U.S. tax consequences. In addition, this summary does not deal with all tax consequences that may be relevant to a U.S. holder in light of its personal circumstances or particular situations, such as:

- U.S. holders that may be subject to special tax treatment, including brokers or dealers in securities or currencies, banks, financial institutions, regulated investment companies, real estate investment trusts, tax-exempt entities, insurance companies, pension or retirement plans, or traders in securities that elect to use a mark-to-market method of tax accounting for their securities;
- U.S. holders holding the Shares as a part of a hedging, integrated, or conversion transaction or a straddle or persons deemed to sell the Shares under the constructive sale provisions of the Code;
- U.S. holders whose “functional currency” is not the U.S. dollar;
- corporations that accumulate earnings to avoid U.S. federal income tax;
- certain former citizens or long-term residents of the United States;
- U.S. holders that own, or are deemed to own, 5% or more (by vote or value) of our stock; or
- partnerships or other pass-through entities or investors in such entities.

If an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes holds the Shares, the tax treatment of a partner generally will depend upon the status of the partner and the activities of the partnership. Partnerships holding the Shares and partners in such partnerships should consult their tax advisors regarding the tax consequences in their particular circumstances.

We have not sought, nor will we seek, a ruling from the Internal Revenue Service (the “IRS”), with respect to the matters discussed below. There can be no assurance that the IRS will not take a different position concerning the tax consequences described herein or that any such position would not be sustained by a court.

As used herein, the term “U.S. holder” means a beneficial owner of the Shares that is, for U.S. federal income tax purposes:

- individual who is a citizen or resident of the United States;
- a corporation (or any 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 it (i) is subject to the primary supervision of a court within the United States and one or more U.S. persons have the authority to control all substantial decisions of the trust or (ii) has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

A “non-U.S. holder” is a beneficial owner of the Shares (other than an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is not a U.S. holder. This summary does not apply to non-U.S. holders.

THIS SUMMARY OF CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS IS FOR GENERAL INFORMATION ONLY AND IS NOT TAX ADVICE. U.S. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE U.S. FEDERAL, STATE, AND LOCAL AND NON-U.S. INCOME AND NON-INCOME TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF THE SHARES IN THEIR PARTICULAR CIRCUMSTANCES.

Distributions

Distributions, if any, made on the Shares to a U.S. holder generally will be included in the U.S. holder's income as ordinary dividend income to the extent of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. However, with respect to dividends received by individuals, such dividends generally are taxed at the lower applicable long-term capital gains rates, provided that certain holding period and other requirements are satisfied. Distributions (and constructive distributions) in excess of our current and accumulated earnings and profits will be treated as a return of capital to the extent of a U.S. holder's tax basis in the Shares, and thereafter as capital gain from the sale or exchange of the Shares. Dividends received by a corporation may be eligible for a dividends-received deduction, subject to applicable limitations.

Sale or Other Taxable Disposition of the Shares

Upon the sale or other taxable disposition of the Shares, a U.S. holder generally will recognize capital gain or loss equal to the difference between (i) the amount of cash and the fair market value of all other property received upon such disposition and (ii) the U.S. holder's tax basis in the Shares. Such capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period in the Shares is more than one year at the time of the taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. holders (including individuals) generally will be subject to reduced rates of U.S. federal income tax. A U.S. holder's ability to deduct capital losses may be limited.

Information Reporting and Backup Withholding

Information reporting requirements generally will apply to dividends paid on the Shares and proceeds from a sale or other taxable disposition of the Shares, unless the U.S. holder is an exempt recipient (such as a corporation). Backup withholding (currently at a 24% rate) will apply to those payments if the U.S. holder fails to provide its correct taxpayer identification number, or certification of exempt status, or if the U.S. holder is notified by the IRS that it has failed to report in full payments of interest and dividend income. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules generally will be allowed as a refund or a credit against a U.S. holder's U.S. federal income tax liability, provided that the required information is furnished timely to the IRS. U.S. holders should consult their tax advisors regarding their information reporting and backup withholding obligations in their particular circumstances.

THIS SUMMARY IS FOR GENERAL INFORMATION ONLY AND IS NOT TAX ADVICE. U.S. HOLDERS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE U.S. FEDERAL, STATE, AND LOCAL AND NON-U.S. INCOME AND NON-INCOME TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF THE SHARES IN THEIR PARTICULAR CIRCUMSTANCES, INCLUDING ANY INFORMATION REPORTING REQUIREMENTS AND THE IMPACT OF ANY POTENTIAL CHANGE IN LAW.

SELLING SECURITYHOLDERS

On May 24, 2024, we issued and sold to the Selling Securityholders pursuant to the Purchase Agreement in a private placement (i) 2,250,000 shares of our common stock, and (ii) \$20.0 million aggregate principal amount of Debentures initially convertible by the Selling Securityholders into 10,000,000 shares of our common stock. In connection with Purchase Agreement, we entered into a Registration Rights Agreement with the Selling Securityholders, which provided the Selling Securityholders with registration rights with respect to the Upfront Shares and the Conversion Shares. The Selling Securityholders, which term includes any additional selling stockholder listed in a prospectus supplement, and their donees, pledgees, assignees, transferees, distributees or other successors in interest selling securities received after the date of this prospectus from the Selling Securityholders as a non-sale transfer, may from time to time offer and sell the Shares pursuant to this prospectus or any applicable prospectus supplement.

The following table sets forth certain information as of the date of this prospectus, concerning the principal amount of Shares beneficially owned and the Shares that may be offered from time to time under this prospectus by the Selling Securityholders named in the table. The second column lists the number of shares of common stock beneficially owned by each Selling Securityholder, based on its ownership of the shares of common stock and Debentures, as of June __, 2024, assuming conversion of the Debentures held by the Selling Securityholders on that date, without regard to any limitations on conversion.

The third column lists the shares of common stock being offered by this prospectus by the Selling Securityholders.

We prepared this table based on the information supplied to us by the Selling Securityholders named in the table and we have not sought to verify such information. This table only reflects information the Selling Securityholders provided us. Information concerning the Selling Securityholders may change from time to time and any changed information will be set forth in supplements to this prospectus if and when necessary.

In accordance with the terms of a registration rights agreement with the Selling Securityholders, this prospectus generally covers the resale of the sum of (i) the number of Upfront shares issued to the selling shareholders in the private placement described above and (ii) the maximum number of Conversion Shares issuable upon conversion of the Debentures, determined as if the outstanding Debentures were converted in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the conversion of the debentures. The fourth column assumes the sale of all of the shares offered by the selling shareholders pursuant to this prospectus.

Under the terms of the Debentures, a Selling Securityholder may not convert the Debentures to the extent such conversion would cause such Selling Securityholder, together with its affiliates and attribution parties, to beneficially own a number of shares of common stock which would exceed 4.99% of our then outstanding common stock following such conversion, excluding for purposes of such determination shares of common stock issuable upon conversion of such Debentures which have not been converted. The number of shares in the second and fourth columns do not reflect this limitation. The Selling Securityholder may sell all, some or none of their shares in this offering. See “Plan of Distribution.”

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Name	Shares of Common Stock			
	Number of Shares of Common Stock Beneficially Owned Prior to the Offering ⁽¹⁾	Maximum Number of Shares of Common Registered Hereunder for Sale	Common Stock Beneficially Owned Upon Completion of the Offering ⁽²⁾	
			Number of Shares	Percentage
Alto Opportunity Master Fund, SPC – Segregated Master Portfolio B	2,041,667	2,041,667	0	0%
FourWorld Deep Value Opportunities Fund I, LLC	1,701,389	1,701,389	0	0%
JGB Capital LP	210,972	210,972	0	0%
JGB Capital Offshore Ltd.	4,348,750	4,348,750	0	0%
JGB Partners LP	3,947,222	3,947,222	0	0%

(1) Figures in this column include the Upfront Shares and the Conversion Shares, in each case, without taking account of any limitation on conversion and exercise pursuant to the terms of the Debentures.

(2) Assumes that, after the date of this prospectus and prior to completion of this offering, none of the Selling Securityholders (i) acquires additional shares of our common stock or other securities or (ii) sells or otherwise disposes of shares of our common stock or other securities held by such selling shareholders as of the date hereof and not offered hereby

PLAN OF DISTRIBUTION

We are registering the resale by the Selling Securityholders or their permitted transferees from time to time of up to 12,250,000 shares of our common stock comprising (i) up to 2,250,000 Upfront Shares and (ii) up to 10,000,000 Conversion Shares issuable upon conversion of the Debentures. We will not receive any of the proceeds from the sale of the Shares by the Selling Securityholders. The aggregate proceeds to the Selling Securityholders will be the purchase price of the securities less any discounts and commissions borne by the Selling Securityholders. We are required to pay all fees and expenses incident to the registration of the securities to be offered and sold pursuant to this prospectus. The Selling Securityholders will bear all commissions and discounts, if any, attributable to its sale of securities.

The shares of common stock beneficially owned by the Selling Securityholders covered by this prospectus may be offered and sold from time to time by the Selling Securityholders. The term "Selling Securityholder" includes any additional selling stockholder listed in a prospectus supplement, and their donees, pledgees, assignees, transferees, distributees or other successors in interest selling securities received after the date of this prospectus from the Selling Securityholders as a non-sale transfer, may from time to time offer and sell the Shares pursuant to this prospectus or any applicable prospectus supplement. The Selling Securityholders will act independently of us in making decisions with respect to the timing, manner and size of each sale. Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price or in negotiated transactions. The Selling Securityholders may sell its securities by one or more of, or a combination of, the following methods:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

In addition, any securities that qualify for sale pursuant to Rule 144 or another exemption from registration under the Securities Act or other such exemption may be sold under Rule 144 or such other exemption rather than pursuant to this prospectus.

Broker-dealers engaged by the Selling Securityholders may arrange for other brokers-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Securityholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

In connection with the sale of the securities or interests therein, the Selling Securityholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Securityholders may also sell securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Securityholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities

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which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Securityholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Securityholders has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities.

The Company is required to pay certain fees and expenses incurred by the Company incident to the registration of the securities. The Company has agreed to indemnify the Selling Securityholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the securities may be resold by the Selling Securityholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect. The resale securities will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws. In addition, in certain states, the resale securities covered hereby may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common stock by the Selling Stockholders or any other person. We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

LEGAL MATTERS

The validity of the Shares has been passed upon by ArentFox Schiff LLP, Washington, D.C.

EXPERTS

The consolidated financial statements of Bionano Genomics, Inc. (the “Company”) as of December 31, 2023 and 2022 and for each of the years then ended incorporated by reference in this Prospectus and in the Registration Statement have been so incorporated in reliance on the report of BDO USA, P.C., an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting. The report on the consolidated financial statements contains an explanatory paragraph regarding the Company’s ability to continue as a going concern.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all of the information set forth or incorporated by reference in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including Bionano. The address of the SEC website is www.sec.gov.

We maintain a website at www.bionanogenomics.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The SEC file number for the documents incorporated by reference in this prospectus is 001-38613. The documents incorporated by reference into this prospectus contain important information about us that you should read.

The following documents are incorporated by reference into this document:

- our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on [March 5, 2024](#);
- our Definitive Proxy Statement on Schedule 14A, filed with the SEC on [April 26, 2024](#) (to the extent incorporated by reference into Part III of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023);
- our Quarterly Report on Form 10-Q for the quarters ended March 31, 2024, filed with the SEC on [May 8, 2024](#);
- our Current Reports on Form 8-K filed with the SEC on [February 28, 2024](#), [March 5, 2024](#) (with respect to Item 2.05 only), [April 5, 2024](#), [April 8, 2024](#), [May 8, 2024](#) (with respect to Item 2.05 only), and [May 28, 2024](#); and
- the description of our common stock which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed on [August 17, 2018](#), including any amendments or reports filed for the purposes of updating this description.

We also incorporate by reference into this prospectus all documents (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, as well as after the date of this prospectus until we file a post-effective amendment that indicates the termination of the offering of the Shares made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with this prospectus, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents to Bionano Genomics, Inc. 9540 Towne Centre Drive, Suite 100, San Diego, California 92121; telephone: (858) 888-7600.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the estimated costs and expenses payable by us in connection with the offering of the securities being registered. All the amounts shown are estimates, except for the SEC registration fee.

SEC registration fee	\$ 1,744
Accounting fees and expenses	\$ 25,000
Legal fees and expenses	\$ 25,000
Printing and miscellaneous expenses	\$ 4,834
Total	\$ 56,578

Item 15. Indemnification of Directors and Officers.

We are incorporated under the laws of the State of Delaware. Section 145 of the General Corporation Law of the State of Delaware provides that a Delaware corporation may indemnify any persons who were, are, or are threatened to be made, parties to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such corporation as an officer, director, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who were, are, or are threatened to be made, a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses (including attorneys' fees) actually and reasonably incurred.

Our amended and restated certificate of incorporation, as amended, and amended and restated bylaws provide for the indemnification of our directors and officers to the fullest extent permitted under the General Corporation Law of the State of Delaware. Section 102(b)(7) of the General Corporation Law of the State of Delaware permits a corporation to provide in its certificate of incorporation that a director or officer of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director or officer, except for liability for any:

- transaction from which the director or officer derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- in the case of a director, unlawful payment of dividends or redemption of shares;
- breach of a director's duty of loyalty to the corporation or its stockholders; or
- in the case of an officer, action by or in the right of the corporation.

Our amended and restated certificate of incorporation, as amended, includes such a provision with respect to our directors. Expenses incurred by any officer or director in defending any such action, suit or proceeding in advance of its final disposition will be paid by us upon delivery to us of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by us.

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Section 174 of the General Corporation Law of the State of Delaware provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the General Corporation Law of the State of Delaware, we have entered, and continue to enter, into separate indemnity agreements with each of our directors and executive officers that require us to indemnify such persons against any and all costs and expenses (including attorneys', witness or other professional fees) actually and reasonably incurred by such persons in connection with any action, suit or proceeding (including derivative actions), whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was a director or officer or is or was acting or serving as an officer, director, employee or agent of ours or any of our affiliated enterprises. Under these agreements, we are not required to provide indemnification for certain matters, including:

- indemnification beyond that permitted by the General Corporation Law of the State of Delaware;
- indemnification for any proceeding with respect to the unlawful payment of remuneration to the director or officer;
- indemnification for certain proceedings involving a final judgment that the director or officer is required to disgorge profits from the purchase or sale of our stock;
- indemnification for proceedings involving a final judgment that the director's or officer's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct or a breach of his or her duty of loyalty, but only to the extent of such specific determination;
- indemnification for proceedings or claims brought by an officer or director against us or any of our directors, officers, employees or agents, except for (1) claims to establish a right of indemnification or proceedings, (2) claims approved by our board of directors, (3) claims required by law, (4) when there has been a change of control as defined in the indemnification agreement with each director or officer, or (5) by us in our sole discretion pursuant to the powers vested to us under the General Corporation Law of the State of Delaware;
- indemnification for settlements the director or officer enters into without our consent; or
- indemnification in violation of any undertaking required by the Securities Act or in any registration statement we file.

The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder.

We have an insurance policy in place that covers our officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act or otherwise.

Pursuant to certain underwriting agreements we may enter, the underwriters are obligated, under some circumstances, to indemnify our directors, officers and controlling persons against specified liabilities, including liabilities under the Securities Act.

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Item 16. Exhibits.

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 of the Registrant’s Annual Report on Form 10-K, filed with the SEC on March 23, 2021).
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 of the Registrant’s Current on Form 8-K, filed with the SEC on August 4, 2023).
3.3	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 of the Registrant’s Current Report on Form 8-K, filed with the SEC on August 24, 2018).
3.4	Amendment to Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 of the Registrant’s Current Report on Form 8-K, filed with the SEC on April 14, 2023).
4.1	Form of Senior Secured Convertible Debenture Due May 24, 2026 (incorporated by reference to Exhibit 4.1 of the Registrant’s Current Report on Form 8-K, filed with the SEC on May 28, 2024).
5.1	Opinion of ArentFox Schiff LLP.
10.1*	Securities Purchase Agreement, dated May 24, 2024, by and among the Company and the Selling Securityholders named therein (incorporated by reference to Exhibit 10.1 of the Registrant’s Current on Form 8-K, filed with the SEC on May 28, 2024).
10.2	Registration Rights Agreement, dated May 24, 2024, by an among the Company and the Selling Securityholders named therein (incorporated by reference to Exhibit 10.5 of the Registrant’s Current on Form 8-K, filed with the SEC on May 28, 2024)
23.1	Consent of BDO USA, P.C., independent registered public accounting firm.
23.2	Consent of ArentFox Schiff LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included on signature page).
107	Filing Fee Table.

* Certain schedules to this agreement have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Company agrees to furnish a copy of all omitted schedules to the SEC upon its request. Portions of this exhibit have been omitted pursuant to Item 601(b)(2)(ii) of Regulation S-K. The Company agrees to furnish supplementally an unredacted copy of the Exhibit to the SEC upon its request.

Item 17. Undertakings.

- (a) The undersigned registrant hereby undertakes:
- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;
- provided, however*, that the undertakings set forth in paragraphs (1)(i), (1)(ii) and (1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained

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in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement or are contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
 - (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
 - (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.
 - (5) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 10th day of June, 2024.

BIONANO GENOMICS, INC.

By: /s/ R. Erik Holmlin, Ph.D.
 R. Erik Holmlin, Ph.D.
 President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints R. Erik Holmlin, Ph.D. and Gülsen Kama, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution and resubstitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments (including post effective amendments, exhibits thereto and other documents in connection therewith) to this Registration Statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462 under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ R. Erik Holmlin, Ph.D.</u> R. Erik Holmlin, Ph.D.	President, Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	June 10, 2024
<u>/s/ Gülsen Kama</u> Gülsen Kama	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	June 10, 2024
<u>/s/ David L. Barker, Ph.D.</u> David L. Barker, Ph.D.	Director	June 10, 2024
<u>/s/ Yvonne Linney, Ph.D.</u> Yvonne Linney, Ph.D.	Director	June 10, 2024
<u>/s/ Albert A. Luderer, Ph.D.</u> Albert A. Luderer, Ph.D.	Director	June 10, 2024
<u>/s/ Hannah Mamuszka</u> Hannah Mamuszka	Director	June 10, 2024
<u>/s/ Aleksandar Rajkovic, M.D., Ph.D.</u> Aleksandar Rajkovic, M.D., Ph.D.	Director	June 10, 2024
<u>/s/ Christopher Twomey</u> Christopher Twomey	Director	June 10, 2024
<u>/s/ Kristiina Vuori, M.D., Ph.D.</u> Kristiina Vuori, M.D., Ph.D.	Director	June 10, 2024
<u>/s/ Vincent Wong, J.D., M.B.A.</u> Vincent Wong, J.D., M.B.A.	Director	June 10, 2024



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June 10, 2024

Bionano Genomics, Inc.
9540 Towne Centre Drive, Suite 100
San Diego, California 92121

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Bionano Genomics, Inc., a Delaware corporation (the "Company"), in connection with the Registration Statement on Form S-3 (the "Registration Statement"), filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"). The Registration Statement relates to the registration for resale by the selling securityholders named in the Registration Statement (the "Selling Securityholders") of up to 12,250,000 shares of the Company's common stock, \$0.0001 par value per share ("Common Stock"), by the Selling Securityholder comprising (i) up to 2,250,000 shares of Common Stock (the "Upfront Shares"), and (ii) up to 10,000,000 shares of Common Stock (the "Conversion Shares") issuable upon conversion of the \$20.0 million aggregate principal amount of senior secured convertible debentures due May 24, 2026 (the "Debentures").

In connection with our opinion, we have examined the Registration Statement, including the exhibits thereto, the Debentures, and such other documents, corporate records and instruments, and have examined such laws and regulations, as we have deemed necessary for the purposes of this opinion. In making our examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity with the originals of all documents submitted to us as copies and the legal capacity of all natural persons. As to matters of fact material to our opinions in this letter, we have relied on certificates and statements from officers and other employees of the Company, public officials and other appropriate persons.

Based on the foregoing and subject to the qualifications set forth below, we are of the opinion that:

1. The Upfront Shares have been duly authorized by all necessary corporate action of the Company, and are validly issued, fully paid and non-assessable; and
2. The Conversion Shares, issuable upon conversion of the Debentures when issued by the Company against payment therefor in the circumstances contemplated by the Debentures, will have been duly authorized by all necessary corporate action of the Company, and will be validly issued, fully paid, and non-assessable.

The foregoing opinions are limited to the General Corporation Law of the State of Delaware, and we express no opinion as to the laws of any other jurisdiction.

The opinions expressed in this opinion letter are as of the date of this opinion letter only and as to laws covered hereby only as they are in effect on that date, and we assume no obligation to update or supplement such opinion to reflect any facts or circumstances that may come to our attention after that date or any changes in law that may occur or become effective after that date. The opinions herein are limited to the matters expressly set forth in this opinion letter, and no opinion or representation is given or may be inferred beyond the opinions expressly set forth in this opinion letter.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement and to the use of this firm's name under the caption "Legal Matters" in the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ ArentFox Schiff LLP

ArentFox Schiff LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Prospectus constituting a part of this Registration Statement of our report dated March 5, 2024, relating to the consolidated financial statements of Bionano Genomics, Inc. (the “Company”) appearing in the Company’s Annual Report on Form 10-K for the year ended December 31, 2023. Our report contains an explanatory paragraph regarding the Company’s ability to continue as a going concern.

We also consent to the reference to us under the caption “Experts” in the Prospectus.

/s/ BDO USA, P.C.

San Diego, California

June 10, 2024

Calculation of Filing Fee Tables

FORM S-3
(Form Type)Bionano Genomics, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities*

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit ⁽¹⁾	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee ⁽¹⁾	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward	
Newly Registered Securities													
Fees to Be Paid	Equity	Common Stock, \$0.0001 par value per share ⁽²⁾	457(c)	2,250,000	\$0.97	\$2,171,250.00	0.00014760	\$320.48					
Fees to Be Paid	Equity	Common Stock, \$0.0001 par value per share, underlying debentures ⁽²⁾	457(c)	10,000,000	\$0.97	\$9,650,000.00	0.00014760	\$1,424.34					
Fees Previously Paid													
Carry Forward Securities													
Carry Forward Securities													
	Total Offering Amounts								\$1,744.82				
	Total Fees Previously Paid								\$0.00				
	Total Fee Offsets								—				
	Net Fee Due								\$1,744.82				

- (1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) of the Securities Act of 1933, as amended, based upon the average of the high and low prices for a share of the registrant's common stock as reported on The NASDAQ Capital Market on June 3, 2024.
- (2) Pursuant to Rule 416 under the Securities Act, the securities being registered hereunder include such indeterminate number of additional shares of common stock as may be issued after the date hereof as a result of stock splits, stock dividends or similar transactions.

Table 2: Fee Offset Claims and Sources

N/A

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