

**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)

**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:

**Thomas A. Coll, Esq.
Su Lian Lu, Esq.
Alexander Gelter, Esq.
Cooley LLP
10265 Science Center Drive
San Diego, California 92121
(858) 550-6000**

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 that 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. The Selling Securityholders named in this preliminary prospectus may not 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 JULY 31, 2024



Up to 35,026,272 Shares of Common Stock Issuable Upon Exercise of Warrants

This prospectus relates to the resale from time to time by the selling securityholders identified in this prospectus (the "Selling Securityholders") of up to 35,026,272 shares of our common stock, par value \$0.0001 per share, comprising (i) 17,513,136 shares of common stock issuable upon exercise of the Series A Warrants (the "Series A Warrants"), and (ii) 17,513,136 shares of common stock issuable upon exercise of the Series B Warrants (the "Series B Warrants," and together with the Series A Warrants, the "Purchase Warrants," and such shares of common stock issuable upon exercise of the Purchase Warrants, collectively, the "Purchase Warrant Shares"). The Purchase Warrants were acquired by the Selling Securityholders pursuant to a securities purchase agreement, dated July 4, 2024 (the "Purchase Agreement"), in a transaction more fully described in the section titled "Registered Direct Offering and Private Placement Transaction."

We are not selling any shares of common stock under this prospectus and will not receive any proceeds from any sale by the Selling Securityholders of the shares of common stock offered by this prospectus and any prospectus supplement. We will, however, receive proceeds on the exercise by the Selling Securityholders of the Purchase Warrants for shares of common stock covered by this prospectus if such warrants are exercised for cash. The Selling Securityholders will bear all commissions and discounts, if any, attributable to the sales of shares of common stock offered by this prospectus and any prospectus supplement. We will bear all other costs, expenses and fees in connection with the registration of the shares of common stock offered by this prospectus and any prospectus supplement. Our registration of the securities covered by this prospectus does not mean that the Selling Securityholders will exercise the Purchase Warrants or offer or sell any of the Purchase Warrant Shares. The Selling Securityholders identified in this prospectus and any of their pledgees, donees, transferees, assignees or other successors-in-interest may sell the Purchase Warrant Shares in a number of different ways and at varying prices. We provide more information about how the Selling Securityholders may sell or otherwise dispose of the Purchase Warrant Shares in the section titled "Plan of Distribution." 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 July 30, 2024, the last reported sale price on Nasdaq of our common stock was \$0.63 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 5 of this prospectus as well as those contained in any 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.

TABLE OF CONTENTS

	<u>Page</u>
ABOUT THIS PROSPECTUS	ii
PROSPECTUS SUMMARY	1
RISK FACTORS	5
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	11
USE OF PROCEEDS	13
DESCRIPTION OF CAPITAL STOCK	14
MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES	17
SELLING SECURITYHOLDERS	22
PLAN OF DISTRIBUTION	24
LEGAL MATTERS	26
EXPERTS	26
WHERE YOU CAN FIND MORE INFORMATION	26
INCORPORATION OF CERTAIN INFORMATION BY REFERENCE	27

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 it 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, 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 optical genome matching (“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 technology. Through our Lineagen, Inc. d/b/a Bionano Laboratories business, we also offer OGM-based diagnostic testing services.

Registered Direct Offering and Private Placement Transaction

On July 4, 2024, we entered into the Purchase Agreement with the Selling Securityholders, pursuant to which we issued and sold, (i) in a registered direct offering priced at-the-market consistent with the rules of the Nasdaq Stock Market (the “Registered Direct Offering”): (a) an aggregate of 11,700,000 shares of our common stock, and (b) pre-funded warrants to purchase up to an aggregate of 5,813,136 shares of our common stock (the “Pre-Funded Warrants”), and (ii) in a concurrent private placement (the “Private Placement” and together with the Registered Direct Offering, the “Offering”), Series A Warrants to purchase up to an aggregate of 17,513,136 shares of our common stock and Series B Warrants to purchase up to an aggregate of 17,513,136 shares of our common stock. Each share of our common stock and each Pre-Funded Warrant sold pursuant to the Purchase Agreement and issued in the Registered Direct Offering was accompanied by one Series A Warrant and one Series B Warrant issued in the Private Placement. We received net proceeds from the Offering of approximately \$9.0 million, after deducting placement agent fees and offering expenses.

The Purchase Warrants have an exercise price of \$0.571 per share and will be exercisable beginning on the effective date of stockholder approval of the issuance of the Purchase Warrant Shares (“Stockholder Approval”). The Series A Warrants will expire on the earlier of (i) the 24-month anniversary of the Stockholder Approval and (ii) 60 days following the later of (a) the date of the public announcement of the occurrence of a medical administrative contractor (including, without limitation, Molecular Diagnostic Services), issuing a final local coverage determination for OGM for hematological malignancies and (b) the date of the Stockholder Approval. The Series B Warrants will expire on the earlier of (i) the five-year anniversary of the Stockholder Approval and (ii) six months following the later of (a) the date of the public announcement of the occurrence of the Company receiving clearance from the U.S. Food and Drug Administration (the “FDA”) for an OGM system for any indication and (b) the date of the Stockholder Approval.

A holder (together with its affiliates) of the Purchase Warrants may not exercise any portion of the Purchase Warrants to the extent that the holder would own more than 4.99% (or, at the holder’s option upon issuance, 9.99%) of our outstanding common stock immediately after exercise, as such percentage ownership is determined in accordance with the terms of the Purchase Warrants. In lieu of making the cash payment otherwise contemplated to be made to us upon exercise of a Purchase Warrant, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of our common stock determined according to a formula set forth in the Purchase Warrants, provided that such cashless exercise shall only be permitted if no registration statement for the resale of the Purchase Warrant Shares is effective at the time of such exercise or if the prospectus to which such registration statement is a part is not available for the resale of the Purchase Warrant Shares by the Purchase Warrant holder.

The exercise price and number of the shares of our common stock issuable upon the exercise of the Purchase Warrants will be subject to adjustment for stock splits, reverse splits, and similar capital transactions, as described in the Purchase Warrants.

This summary of certain terms and provisions of the Purchase Warrants is not complete and is subject to, and qualified in its entirety by, the provisions of the forms of the Purchase Warrants which were filed with the SEC as an exhibit to a Current Report on Form 8-K filed on July 8, 2024.

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 Securityholders 35,026,272 shares of common stock comprising (i) 17,513,136 shares of common stock issuable upon exercise of the Series A Warrants and (ii) 17,513,136 shares of common stock issuable upon exercise of the Series B Warrants.

Financing Restrictions

The Purchase Agreement provides that for 90 calendar days after the date of the Purchase Agreement, neither we nor any of our subsidiaries may (i) issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of common stock or securities which would entitle the holder thereof to acquire at any time common stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable for, or otherwise entitles the holder thereof to receive, common stock (“Common Stock Equivalents”), or (ii) subject to limited exceptions, file any registration statement or amendment or supplement thereto, other than this prospectus, the registration statement on Form S-3 of which it forms a part, and any related prospectus supplements.

Additionally, the Purchase Agreement provides that from the date of the Purchase Agreement until July 8, 2025, which is the one (1) year anniversary of the closing date of the transactions contemplated thereby, we shall be prohibited from effecting or entering into an agreement to effect any issuance by us or any of our subsidiaries of common stock or Common Stock Equivalents (or a combination of units thereof) involving a transaction in which we (i) issue or sell any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive additional shares of common stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon and/or varies with the trading prices of or quotations for the shares of common stock at any time after the initial issuance of such debt or equity securities, or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to our business or the market for the common stock or (ii) enter into, or effect a transaction under, any agreement, including, but not limited to, an equity line of credit, whereby we may issue securities at a future determined price regardless of whether shares pursuant to such agreement have actually been issued and regardless of whether such agreement is subsequently canceled; provided that, following the expiration of the restrictive period of 90 calendar days after the date of the Purchase Agreement set forth above, neither the entry into our ATM sales agreement with Cowen and Company, LLC in existence as of the date of the Purchase Agreement and/or the entry into an ATM sales agreement with H.C.

Use of Proceeds	Wainwright & Co., LLC. nor the issuance of shares of common stock pursuant to the foregoing ATM Sales agreements shall be subject to the restrictions set forth above. We will not receive any proceeds from the sale of the shares by the Selling Securityholders.
Risk Factors	Investing in our securities involves a high degree of risk. See the section titled “Risk Factors” on page 5 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 Annual Report on Form 10-K for the year ended December 31, 2023 and in our Quarterly Report on Form 10-Q for the three months ended March 31, 2024, as may be updated by our 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 discussed below or 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.

Risks Related to Our Financial Condition and Need for Additional Capital

We have incurred recurring net losses since we were formed and expect to incur losses in the future. We cannot be certain that we will achieve or sustain profitability.

Since our inception, we have incurred recurring net losses and we expect that our losses will continue for the foreseeable future. We incurred net losses of \$31.4 million and \$37.1 million, and used cash in operations of \$28.1 million and \$32.4 million for the three months ended March 31, 2024 and 2023, respectively. As of March 31, 2024, we had an accumulated deficit of \$612.6 million. We cannot predict if we will be profitable in the near future or at all. Our recent acquisitions have increased our expenses and we expect that any future acquisitions of businesses, assets, products or technologies will further increase our expenses, which may result in additional losses. We also expect significant increases in our stock-based compensation expense in future periods, reflecting higher stock option valuations as a public company and the issuance of additional equity awards. In addition, we incur significant legal, accounting and other expenses as a result of being a public company, especially as we no longer qualify as an emerging growth company and are therefore required to comply with additional disclosure and compliance requirements. These factors, among others, will make it hard for us to achieve and sustain profitability. We may also incur significant losses in the future for a number of other reasons, many of which are beyond our control, including the level of market acceptance of our products, the introduction of competitive products and technologies, our future product development efforts, our market penetration and our margins, as well as the other risks described below.

Our recurring losses, negative cash flows and significant accumulated deficit have raised substantial doubt regarding our ability to continue as a going concern.

Since inception, we have experienced recurring operating losses and negative cash flows from operating activities, and have significant accumulated deficit. We expect to continue to generate operating losses and consume significant cash resources for the foreseeable future. We believe that with receipt of the net proceeds in July 2024 from the Offering and in May 2024 from the transaction pursuant to that certain securities purchase agreement dated May 24, 2024, between us and certain accredited investors and JGB Collateral LLC, as collateral agent for the investors (the “JGB Purchase Agreement”) and restructuring of redemption terms for our debt instruments, together with the Company’s existing cash, cash equivalents and short-term investments and after taking into account inaccessible “restricted cash” under the terms of the transaction under the JGB Purchase Agreement, based on the Company’s current business plans we will be able to fund our operating expenses and capital expenditure requirements into at least the fourth quarter of 2024. As noted in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 filed with the SEC on May 8, 2024, based on recurring losses from operations incurred since inception, the expectation of continued operating losses and the need to raise additional capital to finance our future operations, we had determined that there is substantial doubt about our ability to continue as a going concern within 12 months of such Quarterly Report, meaning that we may be unable to continue operations for the foreseeable future or realize assets and discharge liabilities in the ordinary course of operations. As a result, our financial statements include an explanatory paragraph expressing substantial doubt about our ability to continue as a going concern. We will continue to seek to raise additional capital, but without additional financing we may not be able to continue as a going concern. If we are unable to continue as a going concern, we may have to reorganize or liquidate our business and may receive less than the value at which those assets are carried on our consolidated financial statements, and investors may lose all or a part of their investment. If we seek additional financing to fund our business activities in the future and there remains doubt about our ability to continue as a going concern, investors or other financing

TABLE OF CONTENTS

sources may be unwilling to provide additional funding on commercially reasonable terms or at all. The Board has established a strategy committee to work with the Company and outside advisors in evaluating our options and considering alternatives that we believe will maximize stakeholder value, including any of the following or a combination thereof: debt financing, equity investments, combinations with other companies, or the sale of all or part of the company. There can be no assurances that any transactions will be completed and if we are not able to raise sufficient additional capital to fund our future operations, we may potentially seek relief available under applicable insolvency laws. We do not intend to make further announcements regarding this process unless and until the Board approves a specific transaction or otherwise determines that further disclosure is appropriate.

Our future capital needs are uncertain and we will require additional funding in the future to advance the commercialization of our OGM systems, Ionic Purification system, VIA software, and our other products, technologies and services, as well as continue our research and development efforts. If we fail to obtain sufficient additional funding, we will be forced to delay, reduce or eliminate significant portions of our commercialization and development efforts which could negatively impact our revenue opportunities.

Our operations have consumed substantial amounts of cash since our inception. We expect to continue to spend substantial amounts of cash in order to continue the commercialization of our products and technologies, fund our research and development programs and execute potential strategic transactions. In connection with the preparation of our financial statements for the fiscal year ended December 31, 2023, we had performed an analysis of our ability to continue as a going concern and, based on our current business plan, we believed that our existing cash and cash equivalents will not be sufficient for the next twelve months from the issuance of our report for the fiscal year ended December 31, 2023. As noted in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 filed with the SEC on May 8, 2024, we had determined that there continued to be substantial doubt about our ability to continue as a going concern within 12 months of such Quarterly Report. Our ability to execute our operating plan depends on our ability to generate sales and obtain additional funding through equity offerings, debt financings or potential licensing and collaboration arrangements. For example, we will need to raise substantial additional capital if we intend to:

- maintain and expand our sales and marketing efforts to further commercialize our products, technologies and services and address competitive developments;
- maintain and expand our research and development efforts to improve our existing products, technologies and services and develop and launch new products, technologies and services, particularly if any of our products, technologies and services are deemed by the FDA to be medical devices or otherwise subject to additional regulation by the FDA;
- pursue a regulatory path with the FDA, or a regulatory body outside the United States, to market our existing “research use only” products or new products utilized for diagnostic purposes;
- lease additional facilities or build-out existing facilities to grow our inventory and research and development;
- further expand our operations outside the United States;
- enter into collaboration arrangements, if any, or in-license products and technologies;
- acquire or invest in complementary businesses or assets;
- add operational, financial and management information systems; and
- cover increased costs incurred as a result of continued operation as a public company, including costs resulting from our no longer qualifying as an emerging growth company.

Our future funding requirements will be influenced by many factors, including:

- the cost of integrating our acquired businesses or of acquiring future businesses;
- market acceptance of our products, technologies and services, and the variability in costs to achieve such acceptance;
- the cost and timing of establishing additional sales, marketing and distribution capabilities;
- the cost of our research and development activities;

TABLE OF CONTENTS

- our ability to satisfy any outstanding or future debt obligations;
- high interest rates;
- supply chain disruptions;
- the success of our existing distribution and marketing arrangements and our ability to enter into additional arrangements in the future;
- the effects of geopolitical or macroeconomic developments, such as the ongoing military conflict between Russia and Ukraine, the Israel-Hamas war, related sanctions, recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures and global pandemics; and
- the effect of competing technological and market developments.

As of March 31, 2024, we had \$28.3 million in cash, cash equivalents and short-term investments and \$24.8 million in restricted cash and cash equivalents and restricted short-term investments. We received net proceeds of approximately \$8.7 million, after deducting placement agent fees and offering expenses, from the Offering in July 2024. Based on our current business plans, we believe the net proceeds from such offering, together with our existing cash, cash equivalents and short-term investments, and after taking into account inaccessible “restricted cash” under the terms of the JGB Purchase Agreement, will be sufficient to fund our operating expenses and capital expenditure requirements into at least the fourth quarter of 2024. Nevertheless, our existing cash and cash equivalents and available-for-sale securities, will not be sufficient for us to achieve cash-flow break even and we expect to need to seek additional capital in the future.

We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect, requiring us to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. The various ways we could raise additional capital carry potential risks. We cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. If we raise additional funds by issuing equity or equity-linked securities, our stockholders may experience dilution. Any equity or debt securities we issue could provide for rights, preferences, or privileges senior to those of holders of our common stock. Future debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or equity financing may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. In addition, we may not be able to access a portion of our existing cash, cash equivalents and investments or “restricted cash” in the account control agreement due to market conditions such as recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures.

Global economic conditions have been challenging, with disruptions to, and volatility in, the credit and financial markets in the U.S. and worldwide resulting from the effects of ongoing geopolitical or macroeconomic developments. If these conditions persist or worsen, we could experience an inability to access additional capital. If we do not have, or are not able to obtain, sufficient funds, we will have to delay, reduce or eliminate significant portions of our development and commercialization efforts relating to our technologies and products and we may be unable to continue to expand our installed base of OGM systems, any of which could, among other things, negatively impact our revenue opportunities. We also may have to reduce marketing, customer support or other resources devoted to our products or technologies or cease operations entirely. Any of these factors could have a material adverse effect on our financial condition, operating results and business. Any of the foregoing could significantly harm our business, prospects, financial condition and results of operation and could cause the price of our securities to decline. Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to conduct our strategic operations.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional shares of our common stock, or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

TABLE OF CONTENTS

In addition, we have a significant number of outstanding stock options, restricted stock units and warrants exercisable into shares of our common stock. To the extent that outstanding stock options or warrants are exercised, or restricted stock units vest and settle, investors purchasing our securities in this offering may experience further dilution in the future. Furthermore, a significant portion of our total outstanding shares are eligible to be sold into the market, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Risks Related to Ownership of our Common Stock

The price of our securities has been and may in the future be volatile or may decline regardless of our operating performance, and you could lose all or part of your investment.

Our stock price has been and may continue to be volatile. The daily closing market price for our common stock has varied significantly in the last 16 months, ranging between a high price of \$11.60 on April 13, 2023 and a low price of \$0.55 on July 8, 2024 (as adjusted for the reverse stock split effectuated on August 3, 2023). During this time, the price per share of our common stock has ranged from an intra-day low of \$0.52 per share to an intra-day high of \$11.80 per share (as adjusted for the reverse stock split).

The trading price of our common stock is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. We cannot predict the actions of market participants and, therefore, can offer no assurances that the market for our common stock will be stable or appreciate over time. The market price of our common stock may be influenced by many factors, including but not limited to:

- our commercial progress in marketing and selling our genome analysis systems, including sales and revenue trends;
- changes in laws or regulations applicable to our systems;
- adverse developments related to our laboratory facilities;
- increased competition in the diagnostics services industry;
- changes in the structure or funding of research at academic and governmental research institutions, as well as pharmaceutical, biotechnology and contract research companies, including changes that would affect their ability to purchase our products, consumables and technologies;
- the failure to obtain and/or maintain coverage and adequate reimbursement for our Bionano Laboratories products and diagnostic assays and patients' willingness to pay out-of-pocket in the absence of such coverage and adequate reimbursement;
- the failure of our customers to obtain and/or maintain coverage and adequate reimbursement for their services using our OGM systems, Ionic Purification systems or our VIA software;
- adverse developments concerning our manufacturers and suppliers;
- our inability to establish future collaborations;
- additions or departures of key scientific or management personnel;
- introduction of new testing services offered by us or our competitors;
- announcements of significant acquisitions, dispositions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- the size and growth, if any, of our targeted markets;
- the failure or discontinuation of any of our product development and research programs;
- actual or anticipated variations in quarterly operating results;
- our cash position, our failure to meet the estimates and projections of the investment community and securities analysts or that we may otherwise provide to the public;

TABLE OF CONTENTS

- publication of research reports about us or our industries or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- issuances of debt or equity securities;
- sales of our securities by us or our stockholders in the future;
- trading volume of our securities;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- data breaches of our company, providers, vendors or customers;
- regulatory or legal developments in the United States and other countries;
- disputes or other developments relating to proprietary rights, including our ability to adequately protect our proprietary rights in our technologies;
- significant lawsuits, including patent or stockholder litigation;
- natural disasters, infectious diseases, conflict, including the ongoing military conflict between Russia and Ukraine and the related sanctions, the Israel-Hamas war, civil unrest, epidemics or pandemics or major catastrophic events;
- general political and economic conditions, including recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures;
- our cost savings initiatives announced in May 2023, October 2023 and March 2024;
- other events or factors, many of which are beyond our control; 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 and in our Quarterly Reports on Form 10-Q filed with the SEC.

As a result, you may not be able to sell your shares of our common stock at or above the price at which you purchase them. In addition, the stock market in general, and the market for life science technology companies in particular (including companies in the diagnostic, genomic and biotechnology related sectors), have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our securities, regardless of our actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company’s securities. Because of the volatility of our stock price, we may become the target of securities litigation in the future. This type of litigation, if instituted, could result in substantial costs and a diversion of management’s attention and resources, which would harm our business, operating results or financial condition.

If we are not able to comply with the applicable continued listing requirements or standards of Nasdaq, Nasdaq could delist our common stock.

Our ability to publicly or privately sell equity securities and the liquidity of our common stock could be adversely affected if we are delisted from Nasdaq or if we are unable to transfer our listing to another stock market. In order to maintain this listing, we must satisfy minimum financial and other continued listing requirements and standards, including a requirement to maintain a minimum bid price of our common stock of \$1.00 per share pursuant to Nasdaq Listing Rule 5550(a)(2) (the “Minimum Bid Price Requirement”).

On multiple occasions in the past, we have failed to comply with the per share minimum required for continued listing on Nasdaq. For example, on May 30, 2023, we received a letter (the “Notice”) from Nasdaq advising us that for 30 consecutive trading days preceding the date of the Notice, the bid price of our common stock had closed below the Minimum Bid Price Requirement. While we implemented a reverse stock split, effective August 4, 2023, that temporarily enabled us to satisfy the Minimum Bid Price Requirement, on July 11, 2024, we received another letter

TABLE OF CONTENTS

from Nasdaq (the “Second Notice”) advising us that for 30 consecutive trading days preceding the date of the Second Notice, the bid price of our common stock had closed below the Minimum Bid Price Requirement. The Second Notice has no effect on the listing of our common stock at this time, and our common stock continues to trade on Nasdaq under the symbol “BNGO.”

Under Nasdaq Listing Rule 5810(c)(3)(A), we have 180 calendar days following the date of the Second Notice to regain compliance with the Minimum Bid Price Requirement. If at any time during this 180-day period the closing bid price of our common stock is at least \$1.00 for a minimum of 10 consecutive business days, we will regain compliance with the Minimum Bid Price Requirement and the matter will be closed.

If we do not regain compliance with the Minimum Bid Price Requirement within the applicable compliance period, our common stock will be subject to delisting. In addition, if we fail to satisfy another Nasdaq requirement for continued listing, Nasdaq staff could provide notice that our common stock may become subject to delisting.

Even if we undertake efforts to implement a reverse stock split to attempt to regain compliance with the Minimum Bid Price Requirement, we cannot assure you that such a reverse stock split will allow us to successfully regain compliance with the Minimum Bid Price Requirement, or that such an event leading to notice from Nasdaq staff will not happen again and, if it does, that we will be able to regain compliance. Accordingly, there can be no guarantee that we will be able to maintain our Nasdaq listing. If our common stock is delisted by Nasdaq, it could lead to a number of negative implications, including an adverse effect on the price of our common stock, increased volatility in our common stock, reduced liquidity in our common stock, the loss of federal preemption of state securities laws and greater difficulty in obtaining financing. In addition, delisting of our common stock could deter broker-dealers from making a market in or otherwise seeking or generating interest in our common stock, could result in a loss of current or future coverage by certain sell-side analysts and might deter certain institutions and persons from investing in our securities at all. Moreover, any such delisting could trigger a default or event of default under certain agreements that we have in place with third parties. Delisting could also cause a loss of confidence of our customers, collaborators, vendors, suppliers and employees, which could harm our business and future prospects.

An active trading market for our common stock may not be sustained.

Although our common stock is listed on The Nasdaq Capital Market, there is a risk that an active trading market for our shares may not be sustained, which could put downward pressure on the market price of our common stock and thereby affect the ability of our stockholders to sell their shares. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration.

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 any strategic restructuring plan, strategic alternatives 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 and related sanctions, the Israel-Hamas war, potential future disruptions in access to bank deposits or lending commitments due to bank failures, global pandemics, inflation, increased cost of goods, supply chain issues, and global financial market conditions, 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 prior and any future acquisitions or other strategic transactions;
- use of our existing cash and cash equivalents, available-for-sale securities and the intended use of the net proceeds from recent offerings of our securities;
- our expected cash runway, 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 and in our Quarterly Reports on Form 10-Q filed with the SEC.

TABLE OF CONTENTS

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,” “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 Securityholders of the Purchase Warrant Shares in this offering. The Selling Securityholders will receive all of the proceeds from the sale of the Purchase Warrant 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 incorporated by reference as exhibits into 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;
- 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;

TABLE OF CONTENTS

- 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.

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 general discussion of the material U.S. federal income tax considerations of the purchase, ownership and disposition of the Purchase Warrant Shares. The Purchase Warrant Shares are alternatively referred to herein as our “securities.” All prospective holders of our securities should consult their tax advisors with respect to the U.S. federal, state, local and non-U.S. tax consequences of the purchase, ownership and disposition of our securities.

This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating to the purchase, ownership and disposition of our securities. This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing U.S. Treasury Regulations promulgated thereunder, published administrative pronouncements and rulings of the U.S. Internal Revenue Service, which we refer to as the IRS, and judicial decisions, all as in effect as of the date of this prospectus supplement. These authorities are subject to change and to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to holders described in this discussion. There can be no assurance that a court or the IRS will not challenge one or more of the tax consequences described herein, and we have not obtained, nor do we intend to obtain, a ruling with respect to the U.S. federal income tax consequences to a holder of the purchase, ownership or disposition of our securities.

We assume in this discussion that a holder holds our securities as a “capital asset” within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular holder in light of that holder’s individual circumstances, nor does it address any alternative minimum, Medicare contribution, estate or gift tax consequences, or any aspects of U.S. state, local or non-U.S. taxes or any other U.S. federal tax laws. This discussion also does not address consequences relevant to holders subject to special tax rules, such as holders that own or have owned, or are deemed to own or have owned, more than 5% of our capital stock (except to the extent specifically set forth below), corporations that accumulate earnings to avoid U.S. federal income tax, tax-exempt organizations, governmental organizations, banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities, commodities or currencies, regulated investment companies or real estate investment trusts, persons that have a “functional currency” other than the U.S. dollar, tax-qualified retirement plans, “qualified foreign pension funds” as defined in Section 897(1)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds, holders who hold or receive our securities pursuant to the exercise of employee stock options or otherwise as compensation, holders holding our securities as part of a hedge, wash, straddle or other risk reduction strategy, conversion transaction or other integrated investment, holders deemed to sell our securities under the constructive sale provisions of the Code, holders subject to special tax accounting rules under Section 451(b) of the Code, controlled foreign corporations, passive foreign investment companies and certain former U.S. citizens or long-term residents.

In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are treated as partnerships or disregarded entities for U.S. federal income tax purposes) or persons that hold our securities through such partnerships. If a partnership, including any entity or arrangement treated as a partnership for U.S. federal income tax purposes, holds our securities, the U.S. federal income tax treatment of a partner in such partnership will generally depend upon the status of the partner and the activities of the partnership. Such partners and partnerships should consult their tax advisors regarding the tax consequences of the purchase, ownership and disposition of our securities.

Tax Considerations Applicable to U.S. Holders

Definition of U.S. Holder

In general, a “U.S. holder” means a beneficial owner of our securities (other than a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States or of any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (a) a U.S. court can exercise primary supervision over the trust’s administration and one or more U.S. persons have the authority to control all of the trust’s substantial decisions or (b) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

Distributions on the Purchase Warrant Shares

We do not anticipate declaring or paying any future distributions. However, if we do make distributions on the Purchase Warrant Shares, such distributions will constitute dividends to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles, and will be includible in your income as ordinary income when received. However, with respect to dividends received by individuals, such dividends are generally taxed at the lower applicable long-term capital gains rates, provided certain holding period and other requirements are satisfied. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the U.S. holder's investment, up to such U.S. holder's adjusted tax basis in the Purchase Warrant Shares. Any remaining excess will be treated as capital gain from the sale or exchange of such Purchase Warrant Shares, subject to the tax treatment described in "—Sale or Other Taxable Disposition of the Purchase Warrant Shares."

Sale or Other Taxable Disposition of the Purchase Warrant Shares

Upon the sale, exchange or other taxable disposition of the Purchase Warrant Shares, a U.S. holder will generally recognize capital gain or loss equal to the difference between the amount of cash and the fair market value of any property received upon the sale, exchange or other taxable disposition and such U.S. holder's adjusted tax basis in the Purchase Warrant Shares. This capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period in such Purchase Warrant Shares is more than one year at the time of the sale, exchange or other 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. The deductibility of capital losses is subject to certain limitations.

Backup Withholding and Information Reporting

A U.S. holder may be subject to information reporting and backup withholding when such holder receives payments on our securities (including constructive dividends) or receives proceeds from the sale or other taxable disposition of our securities. Certain U.S. holders are exempt from backup withholding, including C corporations and certain tax-exempt organizations. A U.S. holder will be subject to backup withholding if such holder is not otherwise exempt and such holder:

- fails to furnish the holder's taxpayer identification number, which for an individual is ordinarily his or her social security number;
- furnishes an incorrect taxpayer identification number;
- is notified by the IRS that the holder previously failed to properly report payments of interest or dividends; or
- fails to certify under penalties of perjury that the holder has furnished a correct taxpayer identification number and that the IRS has not notified the holder that the holder is subject to backup withholding.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a U.S. holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS. U.S. holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

Tax Considerations Applicable to Non-U.S. Holders

Definition of non-U.S. Holder

For purposes of this discussion, a "non-U.S. holder" is a beneficial owner of our securities that is neither a U.S. holder nor a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes.

Distributions on the Purchase Warrant Shares

We do not anticipate declaring or paying any future distributions. However, if we make distributions on the Purchase Warrant Shares such distributions will constitute dividends to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the

TABLE OF CONTENTS

non-U.S. holder's investment, up to such non-U.S. holder's adjusted tax basis in the Purchase Warrant Shares. Any remaining excess will be treated as capital gain from the sale or exchange of such Purchase Warrant Shares, subject to the tax treatment described in "—Gain on Sale, Exchange or Other Taxable Disposition of Our Securities" below.

Dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate of the gross amount of the dividend or such lower rate as may be specified by an applicable income tax treaty between the United States and such non-U.S. holder's country of residence for purposes of such treaty.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such non-U.S. holder's country of residence for purposes of such treaty.

To claim a reduction or exemption from withholding, a non-U.S. holder generally will be required to provide (a) a properly executed IRS Form W-8BEN or IRS Form W-8BEN-E (or successor form) and satisfy applicable certification and other requirements to claim the benefit of an applicable income tax treaty between the United States and such non-U.S. holder's country of residence, or (b) a properly executed IRS Form W-8ECI stating that dividends are not subject to withholding because they are effectively connected with such non-U.S. holder's conduct of a trade or business within the United States. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Distributions will also be subject to the discussion in "—Backup Withholding and Information Reporting" and "—Foreign Accounts."

Gain on Sale, Exchange or Other Taxable Disposition of Our Securities

Subject to the discussion in "—Backup Withholding and Information Reporting" and "—Foreign Accounts," in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such non-U.S. holder's sale, exchange or other taxable disposition of our securities unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed at the U.S. federal income tax rates applicable to U.S. persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described in "—Distributions on the Purchase Warrant Shares" also may apply;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% U.S. federal income tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States); or
- we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation" in which case such non-U.S. holder generally will be taxed on its net gain derived from the disposition as effectively connected income taxable at the U.S. federal income tax rates applicable to U.S. persons (as defined in the Code); however, the branch profits tax described above will not apply to a U.S. holder that is a foreign corporation. Generally, a corporation is a U.S. real property holding corporation if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance,

we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. Even if we are or become a U.S. real property holding corporation, provided that our common stock is regularly traded, as defined by applicable U.S. Treasury Regulations, on an established securities market, the Purchase Warrant Shares will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held the Purchase Warrant Shares, as applicable. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the dividends on our securities paid to such non-U.S. holder and the tax withheld, if any, with respect to such dividends. Non-U.S. holders will have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to any dividends on our securities. A non-U.S. holder generally will not be subject to U.S. backup withholding with respect to payments of dividends on our securities if it certifies its non-U.S. status by providing a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or successor form) or IRS Form W-8ECI, or otherwise establishes an exemption; provided we do not have actual knowledge or reason to know such non-U.S. holder is a U.S. person, as defined in the Code. Dividends paid to non-U.S. holders subject to the U.S. withholding tax, as described in “—Distributions on the Purchase Warrant Shares” generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our securities by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is established under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder may be allowed as a credit against the non-U.S. holder’s U.S. federal income tax liability, if any, and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Accounts

The Code generally imposes a U.S. federal withholding tax of 30% on dividends and, subject to the discussion below regarding proposed regulations issued by the U.S. Treasury Department, the gross proceeds of a disposition of our securities paid to a “foreign financial institution” (as defined in the Code), unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding accounts held by certain “specific United States persons” or “United States owned foreign entities” (each as defined in the Code), or otherwise qualifies for an exemption from these rules. A U.S. federal withholding tax of 30% also applies to dividends and, subject to the discussion below regarding proposed regulations issued by the U.S. Treasury Department, will apply to the gross proceeds of a disposition of our securities paid to a “non-financial foreign entity” (as defined in the Code), unless such entity provides the withholding agent with either a certification that it does not have any “substantial United States owners” (as defined in the Code), provides information regarding each substantial United States owners of the entity, or otherwise qualifies for an exemption from these rules. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph.

The withholding provisions described above currently apply to dividends paid on our securities. The U.S. Treasury Department released proposed regulations which, if finalized in their present form, would eliminate the

TABLE OF CONTENTS

U.S. federal withholding tax of 30% applicable to the gross proceeds of a sale or other disposition of our securities. In its preamble to such proposed regulations, the U.S. Treasury Department stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS TAX ADVISOR REGARDING THE PARTICULAR U.S. FEDERAL, STATE AND LOCAL AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR SECURITIES, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

SELLING SECURITYHOLDERS

On July 4, 2024, we entered into the Purchase Agreement with the Selling Securityholders pursuant to which we issued and sold, (i) in the Registered Direct Offering (a) an aggregate of 11,700,000 shares of our common stock, and (b) Pre-Funded Warrants to purchase up to an aggregate of 5,813,136 shares of our common stock, and (ii) in the Private Placement, Series A Warrants to purchase up to an aggregate of 17,513,136 shares of our common stock and Series B Warrants to purchase up to an aggregate of 17,513,136 shares of our common stock. Each share of our common stock and each Pre-Funded Warrant sold pursuant to the Purchase Agreement and issued in the Registered Direct Offering was accompanied by one Series A Warrant and one Series B Warrant issued in the Private Placement.

The Purchase Warrants have an exercise price of \$0.571 per share, and will be exercisable beginning on the effective date of the Stockholder Approval. The Series A Warrants will expire on the earlier of (i) the 24-month anniversary of the Stockholder Approval and (ii) 60 days following the later of (a) the date of the public announcement of the occurrence of a medical administrative contractor (including, without limitation, Molecular Diagnostic Services), issuing a final local coverage determination for OGM for hematological malignancies and (b) the date of the Stockholder Approval. The Series B Warrants will expire on the earlier of (i) the five-year anniversary of the Stockholder Approval and (ii) six months following the later of (a) the date of the public announcement of the occurrence of the Company receiving clearance from the FDA for an OGM system for any indication and (b) the date of the Stockholder Approval.

We are registering the Purchase Warrant Shares to permit the Selling Securityholders and their pledgees, donees, assignees, transferees or other successors-in-interest that receive their shares of common stock after the date of this prospectus to resell or otherwise dispose of the shares in the manner contemplated under “Plan of Distribution” below.

The following table sets forth the name of the Selling Securityholders, the number of shares owned by the Selling Securityholders, the number of shares that may be offered under this prospectus and the number of shares of our common stock owned by the Selling Securityholders assuming all of the shares covered hereby are sold. The number of shares in the column “Number of Shares Being Offered” represents all of the shares that the Selling Securityholders may offer under this prospectus. The Selling Securityholders may sell some, all or none of their shares. We do not know how long the Selling Securityholders will hold the shares before selling them, and, except as described in this prospectus, we currently have no agreements, arrangements or understandings with the Selling Securityholders regarding the sale or other disposition of any of the shares. The shares covered hereby may be offered from time to time by the Selling Securityholders.

The information set forth below is based upon information obtained from the Selling Securityholders and upon information in our possession regarding the issuance of the Purchase Warrants in connection with the Private Placement. The percentages of common stock owned are based on 85,997,130 shares of common stock outstanding as of July 29, 2024, including the common stock registered for resale hereby.

Based upon information provided by the Selling Securityholders, none of the Selling Securityholders or any of its affiliates, officers, directors or principal equity holders has held any position or office or has had any material relationship with us within the past three years.

In addition, except as indicated in the table below, the Selling Securityholders have represented to us that they are not, nor are they affiliated with, a registered broker-dealer.

Name of Selling Securityholder	Shares of Common Stock Beneficially Owned Prior to Offering ⁽¹⁾	Shares of Common Stock Being Offered ⁽²⁾	Shares of Common Stock Beneficially Owned After Offering ⁽³⁾	
			Number	Percent
Armistice Capital, LLC ⁽⁴⁾	32,110,080	17,513,136	14,596,944	17.0
CVI ⁽⁵⁾	24,171,533	17,513,136	6,658,397	7.7

(1) “Beneficial ownership” is a term broadly defined by the SEC in Rule 13d-3 under the Exchange Act and includes more than the typical form of stock ownership, that is, stock held in the person’s name. The term also includes what is referred to as “indirect ownership,” meaning ownership of shares as to which a person has or shares investment power. For purposes of this table, a person or group of persons is deemed to have “beneficial ownership” of any shares that are currently exercisable or exercisable within 60 days of July 31, 2024.

(2) The number of shares of common stock being offered are comprised of the Purchase Warrant Shares.

TABLE OF CONTENTS

- (3) Assumes that all shares being registered in this prospectus are resold to third parties and that the selling securityholder sell all shares of common stock registered under this prospectus.
- (4) The securities are directly held by Armistice Capital Master Fund Ltd., a Cayman Islands exempted company (the “Master Fund”), and may be deemed to be beneficially owned by: (i) Armistice Capital, LLC (“Armistice Capital”), as the investment manager of the Master Fund; and (ii) Steven Boyd, as the Managing Member of Armistice Capital. The Purchase Warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts the Selling Stockholder from exercising that portion of the Purchase Warrants that would result in the Selling Stockholder and its affiliates owning, after exercise, a number of shares of common stock in excess of the beneficial ownership limitation. The address of Armistice Capital Master Fund Ltd. is c/o Armistice Capital, LLC, 510 Madison Avenue, 7th Floor, New York, NY 10022.
- (5) Heights Capital Management, Inc., the authorized agent of CVI Investments, Inc. (“CVI”), has discretionary authority to vote and dispose of the shares held by CVI and may be deemed to be the beneficial owner of these shares. Martin Kobinger, in his capacity as Investment Manager of Heights Capital Management, Inc., may also be deemed to have investment discretion and voting power over the shares held by CVI. Mr. Kobinger disclaims any such beneficial ownership of the shares. CVI Investments, Inc. is affiliated with one or more FINRA members, none of whom are currently expected to participate in the sale, pursuant to the registration statement on Form S-3 of which this prospectus forms a part, of any Purchase Warrant Shares issuable upon exercise of the Purchase Warrants held by CVI. The business address of CVI Investment is c/o Heights Capital Management, Inc., 101 California Street, Suite 3250, San Francisco, CA 94111.

PLAN OF DISTRIBUTION

We are registering the resale by the Selling Securityholders or any of their permitted transferees from time to time of up to 35,026,272 shares of common stock issuable upon exercise of the Purchase Warrants. We will not receive any of the proceeds from the sale of the shares of common stock 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 their 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 securityholder 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 any of the Selling Securityholders as a non-sale transfer. The Selling Securityholders may from time to time offer and sell the Purchase Warrant 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. Any of the Selling Securityholders may sell their securities by one or more of, or a combination of, the following methods:

- purchases by a broker-dealer as principal and resale by such broker-dealer for its own account pursuant to this prospectus;
- ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- block trades in which the broker-dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- an over-the-counter distribution in accordance with the rules of Nasdaq;
- through trading plans entered into by such Selling Securityholder pursuant to Rule 10b5-1 under the Exchange Act, that are in place at the time of an offering pursuant to this prospectus and any applicable prospectus supplement hereto that provide for periodic sales of its securities on the basis of parameters described in such trading plans;
- short sales;
- distribution to employees, members, limited partners or stockholders of such Selling Securityholder, as applicable; through the writing or settlement of options or other hedging transaction, whether through an options exchange or otherwise;
- by pledge to secured debts and other obligations;
- delayed delivery arrangements;
- to or through underwriters or broker-dealers;
- in "at the market" offerings, as defined in Rule 415 under the Securities Act, at negotiated prices, at prices prevailing at the time of sale or at prices related to such prevailing market prices, including sales made directly on a national securities exchange or sales made through a market maker other than on an exchange or other similar offerings through sales agents;
- in privately negotiated transactions;
- in options transactions;
- through a combination of any of the above 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.

TABLE OF CONTENTS

To the extent required, this prospectus may be amended or supplemented from time to time to describe a specific plan of distribution. In connection with distributions of the securities or otherwise, the Selling Securityholders may enter into hedging transactions with broker-dealers or other financial institutions. In connection with such transactions, broker-dealers or other financial institutions may engage in short sales of the securities in the course of hedging the positions they assume with the Selling Securityholders. The Selling Securityholders may also sell the securities short and redeliver the securities to close out such short positions. The Selling Securityholders may also enter into option or other transactions with broker-dealers or other financial institutions 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 may also pledge securities to a broker-dealer or other financial institution, and, upon a default, such broker-dealer or other financial institution, may effect sales of the pledged securities pursuant to this prospectus (as supplemented or amended to reflect such transaction).

In effecting sales, broker-dealers or agents engaged by the Selling Securityholders may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the Selling Securityholders in amounts to be negotiated immediately prior to the sale.

In order to comply with the securities laws of certain states, if applicable, the securities must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states the securities 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.

We also have agreed to indemnify the Selling Securityholders and certain other persons against certain liabilities in connection with the offering of Purchase Warrant Shares offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

We have advised the Selling Securityholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of securities in the market and to the activities of the Selling Securityholders and any of their affiliates. In addition, we will make copies of this prospectus available to the Selling Securityholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The Selling Securityholders may indemnify any broker-dealer that participates in transactions involving the sale of the securities against certain liabilities, including liabilities arising under the Securities Act.

At the time a particular offer of securities is made, if required, a prospectus supplement will be distributed that will set forth the number of securities being offered and the terms of the offering, including the name of any underwriter, dealer or agent, the purchase price paid by any underwriter, any discount, commission and other item constituting compensation, any discount, commission or concession allowed or reallocated or paid to any dealer, and the proposed selling price to the public.

LEGAL MATTERS

The validity of the Purchase Warrant Shares has been passed upon by Cooley LLP, San Diego, California.

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. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, 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 Quarterly Report on Form 10-Q for the three-month period ended March 31, 2024, filed with the SEC on [May 8, 2024](#);
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2023 from our definitive proxy statement relating to our 2024 annual meeting of securityholders, filed with the SEC on [April 26, 2024](#);
- our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on [February 28, 2024](#) (with respect to Items 1.01 and 9.01 only), [March 5, 2024](#) (with respect to Item 2.05 only), [April 5, 2024](#) (with respect to Items 1.01 and 9.01 only), [April 8, 2024](#), [May 8, 2024](#) (with respect to Item 2.05 only), [May 28, 2024](#) (with respect to Items 1.01, 1.02, 2.03, 3.02, 8.01 and 9.01 only), [June 21, 2024](#), [July 8, 2024 \(with respect to Items 1.01, 3.02, 8.01 and 9.01 only\)](#) and [July 18, 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 any future filings (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) 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, until we file a post-effective amendment that indicates the termination of the offering of shares of our common stock made by this prospectus, which 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	3,153
Accounting fees and expenses	20,000
Legal fees and expenses	150,000.00
Printing and miscellaneous expenses	5,500
Total	178,654

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.

TABLE OF CONTENTS

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.

[TABLE OF CONTENTS](#)

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 Quarterly Report on Form 10-Q, filed with the SEC on November 8, 2023).
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 Series A Warrant incorporated by reference to Exhibit 4.2 of the Registrant’s Current Report on Form 8-K, filed with the SEC on July 8, 2024).
4.2	Form of Series B Warrant (incorporated by reference to Exhibit 4.3 of the Registrant’s Current Report on Form 8-K, filed with the SEC on July 8, 2024).
5.1	Opinion of Cooley LLP.
10.1	Form of Securities Purchase Agreement, dated July 4, 2024, by and among the Company and the Selling Securityholders named therein (incorporated by reference to Exhibit 10.1 of the Registrant’s Current Report on Form 8-K, filed with the SEC on July 8, 2024).
23.1	Consent of BDO USA P.C., independent registered public accounting firm.
23.2	Consent of Cooley LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included on signature page).
107	Filing Fee Table.

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 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.

TABLE OF CONTENTS

- (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 31st day of July 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>	July 31, 2024
<u>/s/ Gülsen Kama</u> Gülsen Kama	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	July 31, 2024
<u>/s/ David L. Barker, Ph.D.</u> David L. Barker, Ph.D.	Director	July 31, 2024
<u>/s/ Yvonne Linney, Ph.D.</u> Yvonne Linney, Ph.D.	Director	July 31, 2024
<u>/s/ Albert A. Luderer, Ph.D.</u> Albert A. Luderer, Ph.D.	Director	July 31, 2024
<u>/s/ Hannah Mamuszka</u> Hannah Mamuszka	Director	July 31, 2024
<u>/s/ Aleksandar Rajkovic, M.D., Ph.D.</u> Aleksandar Rajkovic, M.D., Ph.D.	Director	July 31, 2024
<u>/s/ Christopher Twomey</u> Christopher Twomey	Director	July 31, 2024
<u>/s/ Kristiina Vuori, M.D., Ph.D.</u> Kristiina Vuori, M.D., Ph.D.	Director	July 31, 2024
<u>/s/ Vincent Wong, J.D., M.B.A.</u> Vincent Wong, J.D., M.B.A.	Director	July 31, 2024



Thomas A. Coll
+1 858 550 6013
collta@cooley.com

July 31, 2024

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

Ladies and Gentlemen:

We have acted as counsel to Bionano Genomics, Inc., a Delaware corporation (the "**Company**"), in connection with the filing by the Company of a Registration Statement on Form S-3 (the "**Registration Statement**") with the Securities and Exchange Commission (the "**Commission**") under the Securities Act of 1933, as amended (the "**Securities Act**"), including a related prospectus included in the Registration Statement (the "**Prospectus**"), covering the registration for resale of up to 35,026,272 shares of the Company's common stock, \$0.0001 par value ("**Common Stock**"), consisting of (a) up to 17,513,136 shares of Common Stock (the "**Series A Warrant Shares**") issuable upon the exercise of outstanding Series A warrants (the "**Series A Warrants**"), and (b) up to 17,513,136 shares of Common Stock (together with the Series A Warrant Shares, the "**Warrant Shares**") issuable upon the exercise of outstanding Series B warrants (together with the Series A Warrants, the "**Warrants**"). The Warrants were issued by the Company pursuant to that certain Securities Purchase Agreement (the "**Purchase Agreement**") dated July 4, 2024.

In connection with this opinion, we have examined and relied upon the Registration Statement, the Prospectus, the Purchase Agreement, the Warrants, the Company's certificate of incorporation and bylaws, each as currently in effect, and such other records, documents, opinions, certificates, memoranda and instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies, the accuracy, completeness and authenticity of certificates of public officials and the due authorization, execution and delivery of all documents by all persons other than the Company where authorization, execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently verified such matters.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state antifraud law, rule or regulation relating to securities or to the sale or issuance thereof.

With respect to the Warrant Shares, we express no opinion to the extent that future issuances of securities of the Company, adjustments to outstanding securities of the Company or other matters cause the Warrants to be exercisable for more shares of Common Stock than the number available for issuance by the Company or that the consideration paid upon exercise of the Warrants is below the par value of the Common Stock.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Warrant Shares, when issued and paid for in accordance with the terms of the Warrants, will be validly issued, fully paid and nonassessable.

Cooley LLP 10265 Science Center Drive San Diego, CA 92121-1117
t: (858) 550-6000 f: (858) 550-6420 cooley.com



Bionano Genomics, Inc.

July 31, 2024

Page Two

Our opinion is limited to the matters expressly set forth in this letter, and no opinion has been or should be implied, or may be inferred, beyond the matters expressly stated. This opinion speaks only as to law and facts in effect or existing as of the date hereof, and we have no obligation or responsibility to update or supplement this letter to reflect any facts or circumstances that may hereafter come to our attention or any changes in law that may hereafter occur.

We hereby consent to the reference to our firm under the caption "Legal Matters" in the Prospectus and to the filing of this opinion as an exhibit to the Registration Statement. In giving such consents, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

COOLEY LLP

By: /s/ Thomas A. Coll

Thomas A. Coll

Cooley LLP 10265 Science Center Drive San Diego, CA 92121-1117
t: (858) 550-6000 f: (858) 550-6420 cooley.com

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

July 31, 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 Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Share(2)	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, par value \$0.0001 per share	457(c)	35,026,272	\$0.61	\$21,366,026	0.00014760	\$3,153.63
	Total Offering Amounts						\$21,366,026	\$3,153.63
	Total Fees Previously Paid							—
	Total Fee Offsets							—
	Net Fee Due							\$3,153.63

(1) This Registration Statement registers the resale of up to 35,026,272 shares of common stock of the Registrant issuable upon the exercise of Series A warrants and Series B warrants to purchase shares of common stock held by the selling stockholders named in this Registration Statement on Form S-3 (“**Registration Statement**”). Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “**Securities Act**”), this Registration Statement also covers any additional number of shares of common stock issuable upon stock splits, stock dividends, or other distribution, recapitalization or similar events with respect to the shares of common stock being registered pursuant to this registration statement.

(2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act, based on the average of the high and low price per share of the Registrant’s common stock as reported on The Nasdaq Capital Market on July 26, 2024.