

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1

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 No.)

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)

Albert A. Luderer, Ph.D.

Interim 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)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

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, 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 post-effective amendment filed pursuant to Rule 462(d) 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. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

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 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.

EXPLANATORY NOTE

The 1,332,632 shares of our common stock, par value \$0.0001 per share (the “common stock”), the offer and sale of which are being registered hereunder consists of shares of common stock issuable upon the exercise of certain currently outstanding warrants (collectively, the “Warrants”) to purchase shares of common stock, initially offered and sold under our previous “shelf” registration statement on Form S-3 (No. 333-270459) (the “Prior Registration Statement”), that was declared effective on May 10, 2023, and which will expire on November 6, 2026, pursuant to Rule 415(a)(5) under the Securities Act of 1933, as amended, comprising up to:

- 661,377 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$15.120 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated January 3, 2025 (the “2025 Purchase Warrants”);
- 164,684 shares of common stock issuable upon exercise of outstanding Series C warrants to purchase shares of common stock, each with an exercise price of \$18.234 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 30, 2024 (the “Series C Warrants”);
- 145,560 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$61.20 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated April 4, 2024 (the “2024 Purchase Warrants”); and
- 361,011 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$191.13 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 11, 2023 (the “2023 Purchase Warrants”).

The 2025 Purchase Warrants became exercisable on June 11, 2025 and will expire on the five-year anniversary of such date. The Series C Warrants became exercisable on January 15, 2025 and will expire on the five-year anniversary of such date. The 2024 Purchase Warrants were exercisable immediately upon issuance on April 8, 2024 and will expire on the five-year anniversary of the date of issuance. The 2023 Purchase Warrants were exercisable immediately upon issuance on October 13, 2023 and will expire on the five-year anniversary of the date of issuance.

We are filing this new registration statement on Form S-1 for the sole purpose of ensuring that an effective registration statement covers the exercise of the outstanding Warrants.

The information contained in this preliminary prospectus is not complete and may be changed. These securities may not be sold 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 it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS SUBJECT TO COMPLETION, DATED OCTOBER 27, 2026



Up to 1,332,632 Shares of Common Stock Underlying Outstanding Warrants

This prospectus relates to the issuance of up to an aggregate of 1,332,632 shares of our common stock, par value \$0.0001 per share (the “common stock”), that are issuable upon the exercise of certain currently outstanding warrants to purchase shares of common stock outstanding as of the date hereof that were initially offered and sold under our registration statement on Form S-3 (No. 333-270459), which became effective on May 10, 2023 and will expire on November 6, 2026 (collectively, the “Warrants”), comprising up to:

- 661,377 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$15.120 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated January 3, 2025 (the “2025 Purchase Warrants”);
- 164,684 shares of common stock issuable upon exercise of outstanding Series C warrants to purchase shares of common stock, each with an exercise price of \$18.234 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 30, 2024 (the “Series C Warrants”);
- 145,560 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$61.20 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated April 4, 2024 (the “2024 Purchase Warrants”); and
- 361,011 shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock, each with an exercise price of \$191.13 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 11, 2023 (the “2023 Purchase Warrants”).

The 2025 Purchase Warrants became exercisable on June 11, 2025 and will expire on the five-year anniversary of such date. The Series C Warrants became exercisable on January 15, 2025 and will expire on the five-year anniversary of such date. The 2024 Purchase Warrants were exercisable immediately upon issuance and will expire on the five-year anniversary of the date of issuance. The 2023 Purchase Warrants were exercisable immediately upon issuance and will expire on the five-year anniversary of the date of issuance. See “*Description of Securities Being Registered*.”

We will receive the proceeds from the exercise of the Warrants but not from any sale of the underlying shares of common stock.

Our common stock is traded on the Nasdaq Capital Market under the symbol “BNGO.” The last reported sale price of our common stock on the Nasdaq Capital Market on October 26, 2026, was \$1.16 per share.

We are a “smaller reporting company” under the federal securities laws and, as such, are subject to reduced public company disclosure standards for this prospectus and future filings. See the section titled “*Prospectus Summary—Implications of Being a Smaller Reporting Company*” for additional information.

Our business and an investment in our common stock involve significant risks. These risks are described under the caption “*Risk Factors*” beginning on page 4 of this prospectus, as well as those risks described in our most recent Annual Report on Form 10-K and in our other filings with the Securities and Exchange Commission 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 , 2026.

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ABOUT THIS PROSPECTUS

We incorporate by reference important information into this prospectus. You may obtain the information incorporated by reference without charge by following the instructions under “*Where You Can Find Additional Information*.” You should carefully read this prospectus as well as additional information described under “*Incorporation of Certain Information by Reference*,” before deciding to invest in our securities. This prospectus relates to the offering of our common stock issuable upon the exercise of the 2025 Purchase Warrants, Series C Warrants, 2024 Purchase Warrants and 2023 Purchase Warrants currently outstanding as of the date of this prospectus.

We have not authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the securities offered hereby, and only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

The information incorporated by reference or provided in this prospectus contains statistical data and estimates, including those relating to market size and competitive position of the markets in which we participate, that we obtained from our own internal estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Industry publications, studies and surveys generally state that they have been obtained from sources believed to be reliable. While we believe our internal company research is reliable and the definitions of our market and industry are appropriate, neither this research nor these definitions have been verified by any independent source.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “*Where You Can Find Additional Information*.”

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus and the offering of the shares of our common stock 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, the offering of the shares of our common stock 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 and the information incorporated by reference into this prospectus are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this prospectus and the information incorporated by reference into this prospectus, including logos, artwork, and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. 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.

CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements include statements with respect to our beliefs, plans, objectives, goals, expectations, anticipations, assumptions, estimates, intentions and future performance, and involve known and unknown risks, uncertainties and other factors, which may be beyond our control, and which may cause our actual results, performance or achievements to be materially different from future results, performance or achievements expressed or implied by such forward-looking statements. All statements other than statements of historical fact are statements that could be forward-looking statements. You can identify these forward-looking statements through our use of words such as “may,” “can,” “anticipate,” “assume,” “should,” “indicate,” “would,” “believe,” “contemplate,” “expect,” “seek,” “estimate,” “continue,” “plan,” “point to,” “project,” “predict,” “could,” “intend,” “target,” “will,” “potential” and other similar words and expressions of the future.

Any statements in this prospectus, or incorporated by reference herein, and any free writing prospectus, about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward-looking statements. There are a number of important factors that could cause the actual results to differ materially from those expressed in any forward-looking statement made by us, including known and unknown risks, uncertainties and assumptions. These factors are described in the section titled “*Risk Factors*” and elsewhere in this prospectus, and include, but are not limited to:

- our ability to improve our margins, extend our cash runway and reach a potential pathway to profitability;
- our ability to continue as a going concern within 12 months of the filing of our Quarterly Report on Form 10-Q for the quarter ended June 30, 2026, which requires us to manage costs and obtain significant additional financing to fund our strategic plans and commercialization efforts;
- our ability to execute on our strategy and achieve our objectives;
- the impact and utility of our cost savings initiative and our recent financing;
- our ability to continue to drive OGM adoption by potential customers for routine use in genomic analysis;
- the impact, or lack thereof, of the Category I CPT codes to accelerate or increase the adoption of OGM;
- continued research, presentations and publications involving OGM and its utility compared to traditional cytogenetics and our technologies;
- the impact of our Stratys system and VIA software to increase throughput and simplify analysis of OGM data;
- our ability to drive adoption of OGM and our technology solutions;
- our ability to further deploy new products and applications for our technology platforms;
- our expectations and beliefs regarding future growth of the business and the markets in which we operate;
- our ability to consummate any strategic alternatives including the risk that if we fail to obtain additional financing we may seek relief under applicable insolvency laws;
- 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 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 adverse geopolitical and macroeconomic developments, such as the ongoing international conflicts, and related sanctions, regional or global pandemics, inflation, tariffs, 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;
- our ability to attract collaborators and strategic partnerships; and
- the risks and uncertainties under the heading “*Risk Factors*” contained in this prospectus, and in our most recent Annual Report on Form 10-K and in our subsequent Quarterly Reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC.

The foregoing does not represent an exhaustive list of matters that may be covered by the forward-looking statements contained herein or risk factors that we are faced with that may cause our actual results to differ from those anticipated in such forward-looking statements.

All forward-looking statements are expressly qualified in their entirety by this cautionary note. You are cautioned to not place undue reliance on any forward-looking statements, which speak only as of the date of this prospectus or the date of the document incorporated by reference into this prospectus. You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. We have no obligation, and expressly disclaim any obligation, to update, revise or correct any of the forward-looking statements, whether as a result of new information, future events or otherwise. We have expressed our expectations, beliefs and projections in good faith and believe they have a reasonable basis. However, we cannot assure you that our expectations, beliefs or projections will result or be achieved or accomplished.

PROSPECTUS SUMMARY

This summary highlights information about our company, this offering and information contained in greater detail in other parts of this prospectus or incorporated by reference into this prospectus from our filings with the SEC listed in the section titled "Incorporation of Certain Information by Reference." Because it is only a summary, it does not contain all of the information that you should consider before purchasing our securities in this offering, and it is qualified in its entirety by, and should be read in conjunction with, the more detailed information appearing elsewhere or incorporated by reference into this prospectus. You should read the entire prospectus, the registration statement of which this prospectus is a part, and the information incorporated by reference into this prospectus in their entirety, including the "Risk Factors" and our financial statements and the related notes incorporated by reference into this prospectus, before purchasing our securities in this offering. Except as otherwise indicated herein or as the context otherwise requires, 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.

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 mapping ("OGM") solutions, diagnostic services and software. We offer OGM solutions for applications across basic, translational and clinical research, and for other applications including bioprocessing. We offer a platform-agnostic software solution, which integrates next-generation sequencing ("NGS"), microarray and OGM data designed to provide analysis, visualization, interpretation and reporting of copy number variants, single-nucleotide variants and absence of heterozygosity across the genome in one consolidated view. The Company also offers nucleic acid extraction and purification solutions using proprietary isotachopheresis ("ITP") technology. Through our Bionano Laboratories business, we also provide OGM-based diagnostic testing services.

We develop, manufacture, market and sell OGM systems, including the Saphyr® system and the Stratys™ system, which deliver OGM data to enable ultra-sensitive and ultra-specific detection of all classes of structural variation ("SV"). These systems are used to identify structural changes in chromosomes, the study of which is known as cytogenetics, and to accelerate the search for answers in genetic disease and cancer applications as well as in applications for cell and gene therapy. The systems are comprised of an instrument, chip consumables, reagents and software containing a suite of data analysis and visualization tools. OGM has been shown to outperform the current gold standard cytogenetic methods including karyotyping, fluorescence in-situ hybridization ("FISH"), Southern blot and chromosomal microarray ("CMA"), for the detection of SVs. OGM has also been shown to identify structural changes in chromosomes that cannot be identified using current commercially available gene sequencing solutions.

We develop, manufacture, market and sell the Ionic® Purification system, which is able to deliver high quality DNA in a more natural, native form and with fewer contaminants when compared to other isolation and purification solutions. The Ionic Purification system is used to extract, purify, and concentrate DNA or RNA from a variety of sample types, and is comprised of an instrument, consumables, and reagents.

We develop, manufacture, market and sell the VIA™ software which delivers genomic data interpretation solutions tailored for research use in cytogenomics and molecular pathology labs in genetic disease and cancer research markets, with an emphasis on SV. This industry leading, platform agnostic software solution is designed to provide analysis, visualization, interpretation and reporting of SVs, single-nucleotide variants and absence of heterozygosity across the genome in one consolidated view. Our software currently enables analysis of OGM, NGS and microarray data. We believe the integration of OGM with data types common in the industry, such as Variant Call Format ("VCF"), and Binary Alignment Map ("BAM"), into the VIA software should accelerate and broaden our position in digital cytogenetics and comprehensive genome analysis by enabling us to simplify the assessment of clinically relevant variants in cytogenomics applications, potentially reducing interpretation time per sample and expanding our reach into the discovery and translational research markets through the combination of OGM and NGS.

Our Bionano Laboratories business has developed and provides an OGM-based Laboratory Developed Test ("LDT") for facioscapulohumeral muscular dystrophy type 1 ("FSHD1"), which is a progressive disorder that primarily affects the

muscles of the face, shoulder blades (scapula), upper arms, and lower legs. Bionano Laboratories has previously offered LDTs for detecting SVs in individuals with hematologic malignancies, and for detecting SVs in pre- and post-natal samples, through its OGM-Dx™ testing services, and may decide to offer such LDTs in the future again. During 2024, Bionano Laboratories phased out the offering of certain testing services for individuals demonstrating clinical presentations consistent with neurodevelopmental disorders (“NDDs”), including autism spectrum disorders (“ASDs”) and other disorders of childhood development, and during 2025 phased out the offering of OGM-based LDT tests for hematological malignancies and pre- and postnatal constitutional genetic disorders.

Bionano Laboratories also provides laboratory services to clinicians, scientists, pharmaceutical companies, and others who are seeking to incorporate OGM into their genomics research without the need to bring one of our OGM systems in house. Laboratory services for OGM are performed in our laboratory facilities in San Diego, California and, from time-to-time, at partner laboratories in the United States and Europe, and serve as solutions for researchers and clinicians who would like to use OGM for various applications in genomics but have yet to acquire an OGM system.

We have in recent years transformed our business from an instrument company to a provider of a full suite of genomic solutions. We expanded into molecular genetic clinical testing services through our August 2020 acquisition of Lineagen. We furthered our transformation through the expansion into software solutions, made possible by our October 2021 acquisition of BioDiscovery and continued with our November 2022 acquisition of Purigen bringing their leading nucleic acid isolation and purification technology to Bionano. We believe that these acquisitions, along with internal investments in research and development and the build out of our commercial teams, have positioned us well to provide solutions to our customers that we believe will make OGM the standard cytogenetic technique for structural variant analysis.

We expect to continue the cost saving initiatives previously undertaken and maintain focus on our business strategy and efforts on maximizing the utilization of OGM systems across our current installed base with less emphasis on new placements of OGM systems.

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.bionano.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.

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.

Implications of Being a Smaller Reporting Company

We are a “smaller reporting company” as defined in Item 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited financial statements. We will remain a smaller reporting company until the last day of any fiscal year for so long as either (1) the market value of our shares of common stock held by non-affiliates does not equal or exceed \$250.0 million as of the prior June 30th, or (2) our annual revenues did not equal or exceed \$100.0 million during such completed fiscal year and the market value of our shares of common stock held by non-affiliates did not equal or exceed \$700.0 million as of the prior June 30th. To the extent we take advantage of any reduced disclosure obligations, it may make comparison of our financial statements with other public companies difficult or impossible.

THE OFFERING

Common stock offered by us	1,332,632 shares of common stock issuable upon exercise of outstanding Warrants.
Common stock outstanding immediately prior to this offering⁽¹⁾	13,976,957 shares of common stock.
Common stock to be outstanding immediately following this offering⁽¹⁾	15,309,589 shares of common stock, assuming exercise of the Warrants in full.
Use of Proceeds	We estimate that the proceeds from the exercise of the Warrants, if they are exercised in full, will be approximately \$90 million. We intend to use the net proceeds, together with our existing cash and cash equivalents and available-for-sale securities, for general corporate purposes, including working capital, research and development expenses, and capital expenditures. See the section titled “ <i>Use of Proceeds</i> .”
Risk Factors	Investing in our securities involves a high degree of risk. See “ <i>Risk Factors</i> ” on page 4 of this prospectus and other documents incorporated by reference herein.
Nasdaq Capital Market symbol	“BNGO”

(1) The number of our shares of common stock shown above to be outstanding immediately before and after this offering as shown above is based on 13,976,957 shares of our common stock outstanding as of October 23, 2026, and excludes:

- 624,255 shares of common stock issuable upon the exercise of outstanding stock options with a weighted-average exercise price of \$46.30 per share;
- 11,916,424 shares of common stock issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$13.40 per share;
- 1,374 shares of common stock issuable upon the vesting and settlement of restricted stock units outstanding;
- 35,471 shares of common stock reserved for future issuance under our 2020 Inducement Plan (“2020 Plan”), plus any additional shares of our common stock that may become available under the 2020 Plan;
- 1,379 shares of our common stock reserved for issuance under our 2018 Employee Stock Purchase Plan; and
- 118,738 shares of our common stock reserved for issuance under our 2018 Equity Incentive Plan.

Except as otherwise indicated, the information in this prospectus assumes no exercise or conversion of the outstanding stock options, or common warrants (other than the Warrants) summarized above and no vesting or settlement of the outstanding restricted stock units summarized above.

RISK FACTORS

An investment in our common stock 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, 2025, as 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. For a description of these reports and documents, and information about where you can find them, see “Where You Can Find Additional Information” and “Incorporation of Certain Information by Reference.” 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 this Offering

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds we receive from this offering, including for any of the purposes described in the section titled “Use of Proceeds,” and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the price of our common stock to decline. See “Use of Proceeds” for further information on the anticipated use of proceeds from this offering.

We may issue additional equity or convertible debt securities in the future, which may result in dilution to you.

We have a significant number of outstanding stock options, restricted stock units, and warrants outstanding. To the extent that outstanding stock options, or warrants have been or may be exercised or converted, restricted stock units vest and settle, or other securities issued, investors purchasing our common stock upon the exercise of the Warrants in this offering may experience dilution. In addition, we may choose to raise additional capital in the future. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders or result in downward pressure on the price of our common stock.

Future sales of our common stock, or the perception that such future sales may occur, may cause our stock price to decline.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales could occur, during or after the completion of this offering could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are, and the shares of common stock being sold upon the exercise of the Warrants in this offering will be, freely tradable without restriction or further registration under the Securities Act.

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 12 months, ranging between a high price of \$1.87 on October 28, 2025 and a low price of \$1.06 on July 30, 2026. During this time, the price per share of common stock has ranged from an intra-day low of \$1.00 per share to an intra-day high of \$2.23 per share.

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;
- 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 international conflicts and the related sanctions, civil unrest, epidemics or pandemics, outbreaks, resurgences or major catastrophic events;
- general political and economic conditions, including potential future disruptions in access to bank deposits or lending commitments due to bank failures;
- our cost saving initiatives announced in 2023 and 2024;
- other events or factors, many of which are beyond our control; and
- other uncertainties affecting us, including those described in the section titled “*Risk Factors*” in this prospectus, in our most recent Annual Report on Form 10-K and in any subsequently filed Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

As a result, you may not be able to sell your shares of our common stock at or above the exercise 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.

We do not currently intend to pay dividends on our common stock, and any return to investors is expected to come, if at all, only from potential increases in the price of our common stock.

We have never declared or paid any cash dividends on our capital stock, and you should not rely on an investment in our common stock to provide dividend income. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

It is not possible to predict the actual number of shares of common stock we will issue upon exercise of the Warrants, or the gross proceeds resulting from those issuances.

The number of shares of common stock we issue upon the exercise of the Warrants will depend upon the number of Warrants exercised by the holders thereof. Accordingly, the number of shares of common stock we will issue and the gross proceeds resulting from those issuances will be based on decisions made by others, outside of our control, and it is not currently possible to predict the number of shares that will be issued or the gross proceeds to be raised in connection with those issuances.

USE OF PROCEEDS

If the Warrants are exercised in full, we will receive proceeds of approximately \$90 million. However, we do not know when, if or the extent to which such Warrants may be exercised, and it is possible that no Warrants may be exercised, in which case we would not receive any proceeds from this offering.

We intend to use the net proceeds from this offering, together with our existing cash and cash equivalents and available-for-sale securities, for general corporate purposes, including working capital, research and development expenses, and capital expenditures.

The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of the securities offered by us hereunder. Accordingly, our management will have broad discretion in the timing and application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments.

DETERMINATION OF OFFERING PRICE

The exercise prices of the Warrants were negotiated between us and the investors in the respective offerings based on the trading of our common stock prior to the offering, among other things. Other factors considered in determining the exercise price of the Warrants that we sold included our history and prospects, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, the general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We currently intend to retain any future earnings for use in the operation of our business and do not intend to declare or pay any cash dividends in the foreseeable future. Any future determination to pay dividends on our capital stock would be at the discretion of our board of directors, subject to applicable laws, and would depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors considers relevant.

DESCRIPTION OF SECURITIES BEING REGISTERED

We are offering shares of our common stock that are issuable upon the exercise of outstanding Warrants previously issued by us under our registration statement on Form S-3 (No. 333-270459), which became effective on May 10, 2023, comprising up to:

- 661,377 shares of common stock issuable upon exercise of outstanding 2025 Purchase Warrants, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated January 3, 2025;
- 164,684 shares of common stock issuable upon exercise of outstanding Series C Warrants, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 30, 2024;
- 145,560 shares of common stock issuable upon exercise of outstanding 2024 Purchase Warrants, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated April 4, 2024; and
- 361,011 shares of common stock issuable upon exercise of outstanding 2023 Purchase Warrants, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 11, 2023.

Common Stock

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

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

Voting Rights

Holders of our common stock are 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 do not have cumulative voting rights. Our Certificate of Incorporation 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 such shares 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.

Warrants

The following summary of certain terms and provisions of the Warrants is not complete and is subject to, and qualified in its entirety by, the provisions of the Warrants, the forms of which are filed as exhibits to the registration statement of which this prospectus forms a part. Unless otherwise noted, the terms below apply to all of the Warrants.

Duration and Exercise Price

Each 2025 Purchase Warrant has an initial exercise price per share equal to \$15.120 per share. The 2025 Purchase Warrants became exercisable on June 11, 2025 and will expire on the five-year anniversary of that date.

Each Series C Warrant has an initial exercise price per share equal to \$18.234 per share. The Series C Warrants became exercisable immediately upon issuance on October 31, 2024 and will expire on the five-year anniversary of that date.

Each 2024 Purchase Warrant has an initial exercise price per share equal to \$61.20 per share. The 2024 Purchase Warrants became exercisable immediately upon issuance on April 8, 2024 and will expire on the five-year anniversary of that date.

Each 2023 Purchase Warrant has an initial exercise price per share equal to \$191.13 per share. The 2023 Purchase Warrants became exercisable immediately upon issuance on October 13, 2023 and will expire on the five-year anniversary of that date.

For each Warrant, the exercise price and number of shares of our common stock issuable upon exercise are subject to appropriate adjustment in the event of stock dividends, stock splits, recapitalization, reorganizations or similar events affecting our common stock and the exercise price.

Exercisability

The Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the Warrant to the extent that the holder would own more than 4.99% of the outstanding common stock immediately after exercise. For the 2025 Purchase Warrants, the Series C Warrants and the 2024 Purchase Warrants, the holder may instead elect a limit of 9.99% of the outstanding common stock immediately after exercise. Upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's Warrants up to 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the applicable Warrants. No fractional shares of our common stock will be issued in connection with the exercise of a Warrant. In lieu of fractional shares, we will round to the next whole share.

Cashless Exercise

If, at the time a holder exercises a 2025 Purchase Warrant, Series C Warrant or 2024 Purchase Warrant, there is no effective registration statement registering the issuance of the shares to be issued upon exercise, or the prospectus contained therein is not available for that issuance, the holder may elect a cashless exercise. If, at the time a holder exercises a 2023 Purchase Warrant, a registration statement registering the issuance or resale of the underlying shares under the Securities Act is not then effective or available, and an exemption from registration under the Securities Act is not available for that issuance or resale, the holder may likewise elect a cashless exercise. In either case, instead of making the cash payment otherwise contemplated to be made to us upon exercise in payment of the aggregate exercise price, the holder may elect to receive the net number of shares of our common stock determined according to a formula set forth in the applicable Warrants.

Transferability

Subject to applicable laws, a Warrant may be transferred upon notice to us in writing and surrender of the Warrant to us together with the appropriate instruments of transfer.

Exchange Listing

The Warrants are not listed on any securities exchange or nationally recognized trading system.

Rights as a Stockholder

Except as otherwise provided in the Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Warrants.

Fundamental Transaction

In the event of a fundamental transaction, as described in the applicable form of Warrant, and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding common stock, the holders of the Warrants will be entitled to receive upon exercise of the Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Warrants immediately prior to such fundamental transaction. As an alternative, in the event of a fundamental transaction, the holder of a Warrant, at its option, exercisable at any time concurrently with, or within 30 days after, the consummation of a fundamental transaction (or, if later, the date of the public announcement of the applicable fundamental transaction), may cause the Company to purchase the unexercised portion of the Warrants from the holder by paying to the holder an amount in cash equal to the Black Scholes Value (as defined in the applicable Warrant) of the remaining unexercised portion of such Warrants on the date of the consummation of such fundamental transaction. The 2023 Purchase Warrants do not include this repurchase right.

Anti-Takeover Provisions

The provisions of the General Corporation Law of the State of Delaware ("DGCL"), our Certificate of Incorporation and our Bylaws, certain provisions of which are summarized below, may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

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

We are subject to Section 203 of the DGCL. 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 such 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.

In general, Section 203 of the DGCL defines a “business combination” to include the following:

- 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 an entity or person who, together with the entity or person’s affiliates and associates, beneficially owns, or is an affiliate or associate of the corporation and within three years prior to the time of determination of interested stockholder status did own, 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.

A Delaware corporation may “opt out” of these provisions with an express provision in its certificate of incorporation. We have not opted out of these provisions, which may, as a result, discourage or prevent mergers or other takeover or change of control attempts of us.

Certificate of Incorporation and Bylaws

Among other things, our Certificate of Incorporation and Bylaws:

- do not provide stockholders with cumulative voting rights with the result that stockholders holding a plurality 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;
- 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 shares of 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, officers or other employees 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 or any of our directors or officers or other employees that is 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 or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

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.”

PLAN OF DISTRIBUTION

We are offering 1,332,632 shares of our common stock issuable upon the exercise of currently outstanding Warrants previously issued by us under our registration statement on Form S-3 (No. 333-270459), which became effective on May 10, 2023, and are comprised of up to:

- 661,377 shares of common stock issuable upon exercise of outstanding 2025 Purchase Warrants;
- 164,684 shares of common stock issuable upon exercise of outstanding Series C Warrants;
- 145,560 shares of common stock issuable upon exercise of outstanding 2024 Purchase Warrants; and
- 361,011 shares of common stock issuable upon exercise of outstanding 2023 Purchase Warrants.

The 2025 Purchase Warrants became exercisable on June 11, 2025 and will expire on the five-year anniversary of such date. The Series C Warrants became exercisable on January 15, 2025 and will expire on the five-year anniversary of such date. The 2024 Purchase Warrants were exercisable immediately upon issuance and will expire on the five-year anniversary of the date of issuance. The 2023 Purchase Warrants were exercisable immediately upon issuance and will expire on the five-year anniversary of the date of issuance. See “*Description of Securities Being Registered*.”

The shares of our common stock issuable upon the exercise of the Warrants will not be offered through underwriters, brokers or dealers. We will not pay any compensation in connection with the offering of the shares of our common stock upon exercise of the Warrants.

Pursuant to the terms of the Warrants, the shares of common stock will be distributed to those Warrant holders who properly exercise their Warrants and deliver payment of the aggregate exercise price, in accordance with the terms of the Warrants.

Our common stock is listed on the Nasdaq Capital Market and trades under the symbol “BNGO.” The transfer agent of our common stock is Equiniti Trust Company, LLC.

LEGAL MATTERS

The validity of the securities being offered hereby and certain other legal matters will be passed upon for us by Troutman Pepper Locke LLP, Charlotte, North Carolina.

EXPERTS

The consolidated financial statements of Bionano Genomics, Inc. (the Company) as of December 31, 2025 and 2024 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 ADDITIONAL INFORMATION

This prospectus is part of a registration statement we filed with the SEC. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement.

For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You should rely only on the information contained in this prospectus or incorporated by reference into this prospectus. We have not authorized anyone else to provide you with different information. We are not making an offer of these securities in any jurisdiction where the offer is not permitted. You should assume that the information contained in this prospectus, or any document incorporated by reference in this prospectus, is accurate only as of the date of those respective documents, regardless of the time of delivery of this prospectus or any sale of our securities.

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>.

We maintain a website at www.bionano.com. You may access our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus and is not incorporated by reference herein, and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information that we file with it into this prospectus, which means that we can disclose important information to you by referring you to those documents filed separately with the SEC. The information incorporated by reference is an important part of this prospectus. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus.

The following documents are incorporated by reference into this document:

- our Annual Report on Form 10-K for the year ended December 31, 2025, filed with the SEC on [March 23, 2026](#);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2026 and June 30, 2026, filed with the SEC on [May 13, 2026](#) and [August 10, 2026](#), respectively;
- our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on [May 6, 2026](#), [May 14, 2026](#), [May 28, 2026](#), [June 5, 2026](#) and [June 24, 2026](#) to the extent the information in such reports is filed and not furnished;
- our Definitive Proxy Statement on Schedule 14A, filed with the SEC on [April 2, 2026](#) (solely those portions that were incorporated by reference into Part III of our Annual Report on Form 10-K for the fiscal year ended December 31, 2025); and
- the description of our common stock contained in our registration statement on Form 8-A/A, filed with the SEC on [August 17, 2018](#), including all amendments and reports filed for the purpose of updating such description, including [Exhibit 4.5](#) to the Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on [March 5, 2024](#).

All other reports and documents filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date that this registration statement becomes effective and after the date of this prospectus but before the termination of the offering of the securities described in this prospectus (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) shall be deemed to be incorporated by reference into this prospectus.

Notwithstanding the statements in the preceding paragraphs, no document, report or exhibit (or portion of any of the foregoing) or any other information that we have “furnished” to the SEC pursuant to the Exchange Act shall be incorporated by reference into this prospectus.

Any statement contained in this prospectus or contained in a document incorporated or deemed to be incorporated by reference into this prospectus will be deemed to be modified or superseded to the extent that a statement contained in this prospectus or any subsequently filed supplement to this prospectus, or document deemed to be incorporated by reference into this prospectus, modifies or supersedes such statement. Any statements so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You can obtain any of the filings incorporated by reference into this prospectus through us or from the SEC through the SEC’s website at www.sec.gov. We will furnish without charge to you, upon written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents by writing or telephoning us at the following address:

Bionano Genomics, Inc.
9540 Towne Centre Drive, Suite 100
San Diego, California 92121
Telephone: (858) 888-7600

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide different or additional information on our behalf. An offer of these securities is not being made in any jurisdiction where the offer or sale is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date of those respective documents.



**Up to 1,332,632 Shares of Common Stock
Underlying Outstanding Warrants**

PRELIMINARY PROSPECTUS

, 2026

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the costs and expenses, other than placement agent fees and commissions, payable by us in connection with the sale and distribution of the securities being registered. All of the amounts shown are estimates, except for the SEC registration fee:

	Amount to be paid
SEC registration fee	\$ —
Legal fees and expenses	30,000
Accounting fees and expenses	9,000
Miscellaneous	6,500
Total expenses	<u>\$ 45,500</u>

Item 14. 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 our 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.

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.

Item 15. Recent Sales of Unregistered Securities.

The following list sets forth information as to all unregistered securities sold by the Company in the three years preceding the date of this registration statement:

May 2024 Private Placement

On May 24, 2024, we entered into a securities purchase agreement (the “May 2024 Purchase Agreement”) with certain accredited investors (the “May 2024 Investors”) and JGB Collateral LLC, as collateral agent, pursuant to which we issued to the May 2024 Investors in a private placement (the “May 2024 Private Placement”): (i) 37,500 shares of our common stock (as adjusted for the reverse stock split) (the “May 2024 Shares”), and (ii) Senior Secured Convertible Debentures in the aggregate principal amount of \$20,000,000 (the “May 2024 Debentures”), for an aggregate purchase price of \$18,000,000.

Canaccord Genuity LLC (“Canaccord”) acted as the exclusive placement agent for the May 2024 Private Placement, which was conducted on a “reasonable best efforts” basis, pursuant to a placement agent agreement (the “Placement Agent Agreement”), dated May 24, 2024, by and between us and Canaccord. Pursuant to the Placement Agent Agreement, we paid Canaccord a cash fee equal to 6.0% of the aggregate face value of the May 2024 Debentures issued in the May 2024 Private Placement. In addition, we agreed to reimburse Canaccord for any out-of-pocket expenses incurred by Canaccord in connection with the May 2024 Private Placement not to exceed \$75,000. The May 2024 Private Placement closed on May 24, 2024, and the Company received net proceeds of approximately \$16.6 million after payment of placement agent fees, and other offering expenses.

The May 2024 Shares and the May 2024 Debentures were issued in reliance upon Rule 506 of Regulation D promulgated under the Securities Act, as a transaction not requiring registration under the Securities Act and was made without general solicitation or advertising. Pursuant to the May 2024 Purchase Agreement, the May 2024 Investors each represented that it is an accredited investor and that it is acquiring the securities for investment purposes only and not with a view to any resale, distribution or other disposition of such securities in violation of the Securities Act.

July 2024 Private Placement

On July 4, 2024, we entered into a securities purchase agreement (the “July 2024 Purchase Agreement”) with certain institutional investors (the “Purchasers”), pursuant to which we issued to the Purchasers: (i) in a registered direct offering priced at-the-market consistent with the rules of the Nasdaq Stock Market, (a) an aggregate of 195,000 shares of our common stock (as adjusted for the reverse stock split) and (b) pre-funded warrants to purchase up to an aggregate of 96,885 shares of our common stock (as adjusted for the reverse stock split); and (ii) in a concurrent private placement, Series A warrants to purchase up to an aggregate of 291,885 shares of our common stock (as adjusted for the reverse stock split) (the “Series A Warrants”) and Series B warrants to purchase up to an aggregate of 291,885 shares of our common stock (as adjusted for the reverse stock split) (the “Series B Warrants”, and together with the Series A Warrants, the “July 2024 Purchase Warrants”). Each share of common stock and each pre-funded warrant sold pursuant to the July 2024 Purchase Agreement was accompanied by one Series A Warrant and one Series B Warrant. The combined purchase price of each share of common stock and accompanying July 2024 Purchase Warrants was \$34.260 per share (as adjusted for the reverse stock split). The combined purchase price of each pre-funded warrant and accompanying July 2024 Purchase Warrants was \$34.259 (as adjusted for the reverse stock split).

H.C. Wainwright & Co., LLC (“Wainwright”) acted as the exclusive placement agent for the Company on a “reasonable best efforts” basis in connection with the transactions pursuant to an engagement letter (the “Engagement Letter”), by and between us and Wainwright. Pursuant to the Engagement Letter, the Company paid Wainwright an aggregate cash fee equal to 6.0% of the gross proceeds received in the offering and for certain expenses incurred by Wainwright in connection with the offering.

We received gross proceeds of approximately \$10.0 million (excluding up to \$20.0 million of aggregate gross proceeds that may be received in the future upon the cash exercise of the July 2024 Purchase Warrants), before deducting placement agent fees and other offering expenses payable by the Company. We received net proceeds of \$9.3 million after deducting placement agent fees and other offering expenses of \$0.7 million payable by us.

The July 2024 Purchase Warrants were issued in reliance upon an exemption from the registration requirements under the Securities Act afforded by Section 4(a)(2) thereof and/or Rule 506(b) of Regulation D promulgated thereunder.

December 2024 Settlement Agreement and Amendment to Securities Purchase Agreement

On December 31, 2024, we entered into a settlement agreement and amendment (the “Amendment”) relating to our outstanding May 2024 Debentures. Pursuant to the Amendment, the conversion price to convert outstanding principal amounts of the May 2024 Debentures to shares of our common stock was adjusted. As a result of this conversion price adjustment, the \$15,000,000 outstanding aggregate principal amount of the May 2024 Debentures would be convertible into 925,925 shares of common stock (as adjusted for the reverse stock split), of which 759,259 shares (as adjusted for the reverse stock split) were not previously registered under the Securities Act (the “Unregistered Conversion Shares”). As consideration for the Amendment, we issued the May 2024 Investors 83,333 shares of our common stock (as adjusted for the reverse stock split) (the “New Shares” and, together with the Unregistered Conversion Shares, the “Shares”) and to forbear from issuing a redemption notice under the May 2024 Debentures to the May 2024 Investors prior to July 31, 2025.

The Shares were issued in a transaction not involving a public offering under Section 4(a)(2) of the Securities Act as a transaction not requiring registration under the Securities Act and was made without general solicitation or advertising. Pursuant to the Amendment, the May 2024 Investors each represented that it is an accredited investor and that it is acquiring the Shares for investment purposes only and not with a view to any resale, distribution or other disposition of such Shares in violation of the Securities Act.

Item 16. Exhibits.

Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 to Registrant's Quarterly Report on Form 10-Q, filed with the SEC on November 8, 2023).
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K, filed with the SEC on January 27, 2025).
3.3	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to 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 to the Registrant's Current Report on Form 8-K, filed with the SEC on April 14, 2023).
4.1	Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-225970), as amended, originally filed with the SEC on June 28, 2018).
4.2	Form of Warrant to Purchase Series D-1 Preferred Stock issued to Midcap Financial Trust (incorporated by reference to Exhibit 4.8 to the Registrant's Registration Statement on Form S-1 (File No. 333-225970), as amended, originally filed with the SEC on June 28, 2018).
4.3	Form of Warrant to Purchase Common Stock issued to Purchaser in October 2023 Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on October 11, 2023).
4.4	Form of Warrant to Purchase Common Stock issued to Investors in April 2024 Registered Direct Offering (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on April 5, 2024).
4.5	Form of Warrant to Purchase Common Stock issued to Investors in April 2024 Registered Direct Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on April 5, 2024).
4.6	Form of Warrant to Purchase Series A Common Stock issued to Investors in July 2024 Registered Direct Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on July 8, 2024).
4.7	Form of Warrant to Purchase Series B Common Stock issued to Investors in July 2024 Registered Direct Offering (incorporated by reference to Exhibit 4.3 to the Registrant's Current Report on Form 8-K, filed with the SEC on July 8, 2024).
4.8	Form of Warrant to Purchase Series C Common Stock issued to Investors in October 2024 Registered Direct Offering (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on October 31, 2024).
4.9	Form of Warrant to Purchase Common Stock issued to Investors in January 2025 Registered Direct Offering (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 6, 2025).
4.10	Form of Warrant to Purchase Series E/F Common Stock issued to Investors in September 2025 Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on September 18, 2025).
4.11	Description of the Company's Securities (incorporated by reference to Exhibit 4.5 to the Registrant's Annual Report on Form 10-K, filed with the SEC on March 5, 2024).
5.1	Opinion of Troutman Pepper Locke LLP.
*	
10.1 ¹	Form of Securities Purchase Agreement, dated April 4, 2024, by and among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on April 5, 2024).
10.2 ²	Form of Securities Purchase Agreement, dated July 4, 2024, by and among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on July 8, 2024).
10.3 ³	Form of Securities Purchase Agreement, dated October 30, 2024, by and among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on October 31, 2024).
10.4 ⁴	Form of Securities Purchase Agreement, dated January 3, 2025, by and among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on January 6, 2025).

10.5 [^]	Form of Securities Purchase Agreement, dated September 16, 2025, by and among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on September 18, 2025).
10.6+	Bionano Genomics, Inc. 2018 Equity Incentive Plan, as amended (the "2018 Plan") (incorporated by reference to Exhibit 99.1 of the Registrant's Registration Statement on Form S-8 (File No. 333-245764), filed with the SEC on August 13, 2020).
10.6A+	Forms of grant notice, stock option agreement and notice of exercise under the 2018 Plan (incorporated by reference to Exhibit 10.2A of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 9, 2023).
10.6B+	Forms of director grant notice, stock option agreement and notice of exercise under the 2018 Plan (incorporated by reference to Exhibit 10.2B of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 9, 2023).
10.6C+	Forms of double-trigger grant notice, stock option agreement and notice of exercise under the 2018 Plan (incorporated by reference to Exhibit 10.2C of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 9, 2023).
10.6D+	Forms of international grant notice, stock option agreement and notice of exercise under the 2018 Plan (incorporated by reference to Exhibit 10.5 of the Registrant's Registration Statement on Form S-1 (File No. 333-225970), as amended, filed with the SEC on August 17, 2018).
10.6E+	Forms of restricted stock unit grant notice and restricted stock unit award agreement under the Bionano Genomics, Inc. 2018 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 4, 2021).
10.6F+	Bionano Genomics, Inc. 2018 Employee Stock Purchase Plan (incorporated by reference to Exhibit 99.5 of the Registrant's Registration Statement on Form S-8 (File No. 333-227073), filed with the SEC on August 28, 2018).
10.6G+	Bionano Genomics, Inc. 2020 Inducement Plan, as amended (incorporated by reference to Exhibit 99.3 of the Registrant's Registration Statement on Form S-8 (File No. 333-286325), filed with the SEC on March 31, 2025).
10.6H+	Form of Stock Option Grant Notice and Stock Option Agreement under the Bionano Genomics, Inc. 2020 Inducement Plan (incorporated by reference to Exhibit 10.2 of the Registrant's Current Report on Form 8-K, filed with the SEC on August 24, 2020).
10.6I+*	Bionano Genomics, Inc. Non-Employee Director Compensation Policy.
10.7+	Form of Indemnification Agreement by and between the Registrant and each director and executive officer (incorporated by reference to Exhibit 10.7 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 10, 2020).
10.8+	Employment Agreement by and between the Registrant and R. Erik Holmlin, Ph.D., dated November 7, 2017, as amended (incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).
10.9+	Consulting Agreement by and between the Registrant and R. Erik Holmlin, Ph.D., dated May 6, 2026 (incorporated by reference to Exhibit 10.2 of the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 10, 2026).
10.10+	Employment Agreement by and between the Registrant and Mark Oldakowski, dated November 7, 2017 (incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).
10.11+	Offer Letter by and between the Registrant and Albert A. Luderer, dated May 6, 2026 (incorporated by reference to Exhibit 10.1 of the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 10, 2026).
10.12	Lease by and between the Registrant and The Irvine Company LLC, dated January 16, 2012 (incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).
10.12A	First Amendment to the Lease by and between the Registrant and The Irvine Company LLC, dated September 10, 2013 (incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).
10.12B	Second Amendment to the Lease by and between the Registrant and The Irvine Company LLC, dated July 1, 2015 (incorporated by reference to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).
10.12C	Third Amendment to the Lease by and between the Registrant and The Irvine Company LLC, dated December 19, 2019 (incorporated by reference to Exhibit 10.22 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 23, 2021).

10.12D	<u>Fourth Amendment to the Lease by and between the Registrant and The Irvine Company LLC, dated February 15, 2021 (incorporated by reference to Exhibit 10.23 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 23, 2021).</u>
10.12E	<u>Fifth Amendment to the Lease by and between the Registrant and The Irvine Company, LLC, dated January 12, 2022, (incorporated by reference to Exhibit 10.39 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 1, 2022).</u>
10.12F	<u>Sixth Amendment to the Lease by and between the Registrant and The Irvine Company, LLC, dated June 27, 2025 (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed with the SEC on August 14, 2025).</u>
10.13	<u>Standard Industrial/Commercial Single-Tenant Lease, made effective as of November 23, 2021, by and between the Company and 6777 Nancy Ridge LLC (incorporated by reference to Exhibit 10.33 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 1, 2022).</u>
10.14	<u>Commercial Single-Tenant Lease - Net, dated February 28, 2016, by and between Tesa Beach LLC and BioDiscovery, Inc. (incorporated by reference to Exhibit 10.38 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 1, 2022).</u>
10.15	<u>At the Market Offering Agreement, dated February 21, 2025, by and between the Company and H.C. Wainwright & Co. LLC (incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed with the SEC on February 21, 2025).</u>
10.16#	<u>Manufacturing Services Agreement by and between the Registrant and Paramit Corporation, dated February 18, 2015 (incorporated by reference to Exhibit 10.24 to the Company's Registration Statement on Form S-1 (File No. 333-225970), as amended).</u>
10.17#	<u>Technology as a Service Agreement by and between the Registrant and Skywater Technology Foundry, Inc. dated May 21, 2025 (incorporated by reference to Exhibit 10.17 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 23, 2026).</u>
10.18#	<u>Supply Agreement by and between the Registrant and Teledyne MEMS (a business unit of Teledyne Digital Imaging, Inc., dated August 8, 2025 (incorporated by reference to Exhibit 10.18 of the Registrant's Annual Report on Form 10-K, filed with the SEC on March 23, 2026).</u>
10.19^	<u>Securities Purchase Agreement, dated October 11, 2023, by and among the Company and the Purchaser named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on October 11, 2023).</u>
10.20^	<u>Letter Agreement between the Company and the Purchaser named therein, dated February 27, 2024 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on February 28, 2024).</u>
10.21	<u>Separation Agreement, effective as of February 20, 2025, by and between Gülsen Kama and the Company (incorporated by reference to Exhibit 10.19 to the Registrant's Annual Report on Form 10-K, filed with the SEC on March 31, 2025).</u>
10.22^#	<u>Securities Purchase Agreement, dated May 24, 2024, by and among the Company and the Buyers named therein (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 28, 2024).</u>
10.23^#	<u>Security Agreement, dated as of May 24, 2024, by and among the Company, BioDiscovery, LLC, Lineagen, Inc., Purigen Biosystems, Inc., and JGB Collateral LLC (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 28, 2024).</u>
10.24	<u>Placement Agency Agreement, dated May 24, 2024, by and between the Company and Canaccord Genuity LLC (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 28, 2024).</u>
10.25	<u>Registration Rights Agreement, dated May 24, 2024, by and between the Company and the Investors (incorporated by reference to Exhibit 10.5 to the Registrant's Current Report on Form 8-K, filed with the SEC on May 28, 2024).</u>
21.1	<u>Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 of the Company's Annual Report on Form 10-K filed with the SEC on March 23, 2026).</u>
23.1*	<u>Consent of BDO USA, P.C., independent registered public accounting firm.</u>
23.2*	<u>Consent of Troutman Pepper Locke LLP (included as part of Exhibit 5.1).</u>
24.1*	<u>Power of Attorney (included in the signature page to this registration statement).</u>
107*	<u>Filing Fee Table.</u>

* Filed herewith.

- ^ Certain exhibits and schedules have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Registrant hereby undertakes to furnish supplementally a copy of any omitted exhibit or schedule to the SEC upon its request.
- + Indicates a management contract or compensatory plan, contract or arrangement.
- # Portions of this exhibit have been omitted pursuant to Item 601(b)(2)(ii) of Regulation S-K. The Company agrees to furnish supplementally an unredacted copy of the Exhibits to the SEC upon its request.
- € Pursuant to Item 601(b)(10) of Regulation S-K, certain portions of this exhibit have been omitted (indicated by “[***]”) because the Company has determined that such information is not material and is the type that the Company treats as private or confidential. The Registrant hereby agrees to furnish supplementally to the SEC, upon its request, an unredacted copy of this exhibit.

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 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Filing Fee Tables" or "Calculation of Registration Fee" table, as applicable, 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 (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) above 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 Securities Exchange Act of 1934 that are incorporated by reference in this registration statement or are contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *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 first use, 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 date of first use.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.
 - (b) The undersigned registrant hereby undertakes 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 Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) 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.
 - (c) 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 SEC 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 Securities Act and will be governed by the final adjudication of such issue.
 - (d) The undersigned registrant hereby undertakes that:
 - (1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
 - (2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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.
-

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant 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 27th day of October, 2026.

BIONANO GENOMICS, INC.

By: /s/ Albert A. Luderer, Ph.D.
Albert A. Luderer, Ph.D.
Interim Chief Executive Officer
(Principal Executive Officer and Principal
Financial Officer)

POWER OF ATTORNEY

We, the undersigned officers and directors of Bionano Genomics, Inc., hereby severally constitute and appoint Albert A. Luderer, Ph.D. and Mark Adamchak, and each of them singly (with full power to each of them to act alone), to sign any and all amendments (including post-effective amendments) to this registration statement (or any other registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, 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 or necessary to be done in and about the premises, as full to all intents and purposes as he 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/ Albert A. Luderer, Ph.D.</u> Albert A. Luderer, Ph.D.	Interim Chief Executive Officer and Chairman (Principal Executive Officer and Principal Financial Officer)	October 27, 2026
<u>/s/ Mark Adamchak</u> Mark Adamchak	Chief Accounting Officer (Principal Accounting Officer)	October 27, 2026
<u>/s/ David L. Barker, Ph.D.</u> David L. Barker, Ph.D.	Director	October 27, 2026
<u>/s/ Yvonne Linney, Ph.D.</u> Yvonne Linney, Ph.D.	Director	October 27, 2026
<u>/s/ Aleksandar Rajkovic, M.D., Ph.D.</u> Aleksandar Rajkovic, M.D., Ph.D.	Director	October 27, 2026
<u>/s/ Christopher Twomey</u> Christopher Twomey	Director	October 27, 2026
<u>/s/ Kristiina Vuori, M.D., Ph.D.</u> Kristiina Vuori, M.D., Ph.D.	Director	October 27, 2026

October 27, 2026

Board of Directors
Bionano Genomics, Inc.
9540 Towne Centre Drive, Suite 100
San Diego, California

Re: Bionano Genomics, Inc. Registration Statement on Form S-1

Ladies and Gentlemen:

We have acted as counsel to Bionano Genomics, Inc., a Delaware corporation (the "**Company**"), in connection with the Company's Registration Statement on Form S-1 (the "**Registration Statement**"), including the prospectus that is part of the Registration Statement (the "**Prospectus**"), filed on the date hereof with the Securities and Exchange Commission (the "**SEC**") under the Securities Act of 1933, as amended (the "**Securities Act**"). The Registration Statement relates to the offer, sale and issuance by the Company of up to an aggregate of 1,332,632 shares (the "**Warrant Shares**") of common stock, par value \$0.0001 per share ("**Common Stock**"), of the Company, consisting of:

- (i) 661,377 shares of Common Stock issuable upon exercise of outstanding warrants to purchase shares of Common Stock, each with an exercise price of \$15.120 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated January 3, 2025 (the "**2025 Purchase Warrants**");
- (ii) 164,684 shares of Common Stock issuable upon exercise of outstanding Series C warrants to purchase shares of Common Stock, each with an exercise price of \$18.234 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 30, 2024 (the "**Series C Warrants**");
- (iii) 145,560 shares of Common Stock issuable upon exercise of outstanding warrants to purchase shares of Common Stock, each with an exercise price of \$61.20 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated April 4, 2024 (the "**2024 Purchase Warrants**"); and
- (iv) 361,011 shares of Common Stock issuable upon exercise of outstanding warrants to purchase shares of Common Stock, each with an exercise price of \$191.40 per share, that were originally issued pursuant to a prospectus dated May 10, 2023 and a related prospectus supplement dated October 11, 2023 (the "**2023 Purchase Warrants**") and, collectively with the 2025 Purchase Warrants, the Series C Warrants and the 2024 Purchase Warrants, the "**Warrants**").

The Warrants were originally offered, sold and issued in offerings registered under the Company's Registration Statement on Form S-3 (File No. 333-270459). This opinion letter is being furnished in accordance with the requirements of Item 16 of Form S-1 and Item 601(b)(5)

(i)

of Regulation S-K promulgated under the Securities Act. Capitalized terms used and not defined herein shall have the meanings assigned to them in the Registration Statement.

We have reviewed the corporate proceedings taken by the Company with respect to the offer, sale and issuance of the Warrant Shares upon the exercise of the Warrants. We have also examined and relied upon originals or copies of such corporate records, documents, agreements or other instruments of the Company, and such certificates, records of public officials and such other papers, as we have deemed necessary or appropriate in connection herewith, including, but not limited to, the Company's Amended and Restated Certificate of Incorporation, as amended, the Company's Amended and Restated Bylaws, as amended, and the Warrants. As to all matters of fact, we have relied entirely upon certificates of officers of the Company, and have assumed, without independent inquiry, the accuracy of those certificates.

In rendering this opinion letter, we have assumed: the genuineness and authenticity of all signatures on original documents; the legal capacity of all natural persons; the authenticity of all documents submitted to us as originals; the conformity to originals of all documents submitted to us as certified or photocopies; the accuracy and completeness of all documents and records reviewed by us; the accuracy, completeness and authenticity of certificates issued by any governmental official, office or agency and the absence of change in the information contained therein from the effective date of any such certificate; and the due authorization, execution and delivery of all documents where authorization, execution and delivery are prerequisites to the effectiveness of such documents, except we make no such assumption as to the Company.

Subject to the limitations set forth herein, we have made such examination of law as we have deemed necessary for the purposes of expressing the opinions set forth in this letter. We express no opinion herein as to the law of any state or jurisdiction other than the General Corporation Law of the State of Delaware, as currently in effect.

Based on and subject to the foregoing and the exclusions, qualifications, limitations and other assumptions set forth in this opinion letter, we are of the opinion that the Warrant Shares, when issued and delivered upon exercise of the Warrants in accordance with the terms thereof against payment of the exercise price therefor, will be validly issued, fully paid and non-assessable.

In rendering this opinion, we have assumed that, at the time of each issuance of Warrant Shares, (i) the resolutions of the board of directors of the Company that authorized the offer, sale and issuance of the Warrants and the Warrant Shares will remain in full force and effect, and the Company will take no action inconsistent with such resolutions, and (ii) the Company will have a sufficient number of authorized but unissued and otherwise unreserved shares of Common Stock available for issuance upon exercise of the Warrants.

This opinion letter is given as of the date hereof, and we assume no obligation to supplement this opinion letter if any applicable law changes after the date hereof or if we become aware of any facts or circumstances that may change the opinions expressed herein after the date hereof.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the reference to this firm under the heading "Legal Matters" in the Prospectus.

In rendering this opinion letter and giving this consent, we do not admit that we are an “expert” within the meaning of the Securities Act or the rules and regulations promulgated thereunder.

Very truly yours,

/s/ Troutman Pepper Locke LLP
Troutman Pepper Locke LLP

BIONANO GENOMICS, INC.
NON-EMPLOYEE DIRECTOR COMPENSATION POLICY

Each member of the Board of Directors (the “**Board**”) who is not also serving as an employee of or consultant to Bionano Genomics, Inc. (the “**Company**”) or any of its subsidiaries (each such member, an “**Eligible Director**”) will receive the compensation described in this policy for his or her Board service. An Eligible Director may decline all or any portion of his or her compensation by giving notice to the Company prior to the date cash may be paid or equity awards are to be granted, as the case may be. This policy may be amended at any time in the sole discretion of the Board or the Compensation Committee of the Board.

Annual Cash Compensation

The annual cash compensation amount set forth below is payable to Eligible Directors in equal quarterly installments, payable in arrears on the last day of each fiscal quarter in which the service occurred. If an Eligible Director joins the Board or a committee of the Board at a time other than effective as of the first day of a fiscal quarter, each annual retainer set forth below will be pro-rated based on days served in the applicable fiscal year, with the pro-rated amount paid for the first fiscal quarter in which the Eligible Director provides the service and regular full quarterly payments thereafter. All annual cash fees are vested upon payment.

1. Annual Board Service Retainer:
 - a. All Eligible Directors: \$40,000
 - b. Chairman of the Board Service Retainer (in addition to Eligible Director Service Retainer): \$20,000
 - c. Lead Independent Director (in addition to Eligible Director Service Retainer): \$20,000
2. Annual Committee Chair Service Retainer:
 - a. Chairman of the Audit Committee: \$20,000
 - b. Chairman of the Compensation Committee: \$15,000
 - c. Chairman of the Nominating and Corporate Governance Committee: \$10,000
 - d. Chairman of the Science and Technology Committee: \$10,000
3. Annual Committee Member Service Retainer (not applicable to Committee Chairs):
 - a. Member of the Audit Committee: \$10,000
 - b. Member of the Compensation Committee: \$7,500
 - c. Member of the Nominating and Corporate Governance Committee: \$5,000
 - d. Member of the Science and Technology Committee: \$5,000

Equity Compensation

The equity compensation set forth below will be granted under the Company’s 2018 Equity Incentive Plan, as amended (the “**Plan**”), subject to the approval of the Plan by the Company’s stockholders. All stock options granted under this policy will be nonstatutory stock options, with an exercise price

per share equal to 100% of the Fair Market Value (as defined in the Plan) of the underlying common stock of the Company (the "**Common Stock**") on the date of grant, and a term of ten years from the date of grant (subject to earlier termination in connection with a termination of service as provided in the Plan, provided that upon a termination of service other than for death, disability or cause, the post-termination exercise period will be 12 months from the date of termination).

1. **Initial Grant:** For each Eligible Director who is first elected or appointed to the Board following the Effective Date, on the date of such Eligible Director's initial election or appointment to the Board (or, if such date is not a market trading day, the first market trading day thereafter), the Eligible Director will be automatically, and without further action by the Board or Compensation Committee of the Board, granted a stock option to purchase Common Stock with an aggregate Black-Scholes option value of \$247,500 (the "**Initial Grant**"). The shares subject to each Initial Grant will vest in equal monthly installments over a three-year period such that the option is fully vested on the third anniversary of the date of grant, subject to the Eligible Director's Continuous Service (as defined in the Plan) through each such vesting date and will vest in full upon a Change in Control (as defined in the Plan).
2. **Annual Grant:** On the date of each annual stockholder meeting of the Company held after the Effective Date, each Eligible Director who continues to serve as a non-employee member of the Board following such stockholder meeting will be automatically, and without further action by the Board or Compensation Committee of the Board, granted a stock option to purchase Common Stock with an aggregate Black-Scholes option value of \$165,000 (the "**Annual Grant**"). The shares subject to the Annual Grant will vest in equal monthly installments over the 12 months following the date of grant, provided that the Annual Grant will in any case be fully vested on the date of Company's next annual stockholder meeting, subject to the Eligible Director's Continuous Service (as defined in the Plan) through such vesting date and will vest in full upon a Change in Control (as defined in the Plan).

The number of shares subject to each of the Annual Grant and the Initial Grant may be capped by the Compensation Committee or the Board of Directors.

Amended effective as of May 28, 2026

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 23, 2026, 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, 2025. 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

October 27, 2026

Calculation of Filing Fee Tables

S-1

Bionano Genomics, Inc.

Table 1: Newly Registered and Carry Forward Securities

☐ Not Applicable

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to be Paid	1 Equity	Common Stock, par value \$0.0001 per share	Other	661,377	\$ 15.12	10,000,020.24	\$ 0.000087	\$ 870.00				
Fees to be Paid	2 Equity	Common Stock, par value \$0.0001 per share	Other	164,684	\$ 18.234	3,002,848.06	\$ 0.000087	\$ 261.25				
Fees to be Paid	3 Equity	Common Stock, par value \$0.0001 per share	Other	145,560	\$ 61.20	8,908,272.00	\$ 0.000087	\$ 775.02				
Fees to be Paid	4 Equity	Common Stock, par value \$0.0001 per share	Other	361,011	\$ 191.13	69,000,032.43	\$ 0.000087	\$ 6,003.00				
Fees Previously Paid												
Carry Forward Securities												
Carry Forward Securities												
Total Offering Amounts:						\$ 90,911,172.73		\$ 7,909.27				
Total Fees Previously Paid:								\$ 0.00				
Total Fee Offsets:								\$ 7,909.27				
Net Fee Due:								\$ 0.00				

Offering Note

1

(1) Represents 661,377 shares of common stock issuable upon exercise of outstanding 2025 Purchase Warrants, which were originally issued under the Registrant's registration statement on Form S-3 (File No. 333-270459), initially declared effective on May 10, 2023 (the "Prior Registration Statement"). Calculated pursuant to Rule 457(g) under the Securities Act of 1933, as amended (the "Securities Act"), the proposed maximum offering price per unit and maximum aggregate offering price are based on the per share exercise price of the 2025 Purchase Warrants and are presented for informational purposes only. Pursuant to Rule 416 under the Securities Act, this registration statement also covers an indeterminate number of additional shares of common stock that may become issuable upon exercise of the 2025 Purchase Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

2

(2) Represents 164,684 shares of common stock issuable upon exercise of outstanding Series C Warrants, which were originally issued under the Registrant's Prior Registration Statement. Calculated pursuant to Rule 457(g) under the Securities Act, the proposed maximum offering price per unit and maximum aggregate offering price are based on the per share exercise price of the Series C Warrants and are presented for informational purposes only. Pursuant to Rule 416 under the Securities Act, this registration statement also covers an indeterminate number of additional shares of common stock that may become issuable upon exercise of the Series C Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

3

(3) Represents 145,560 shares of common stock issuable upon exercise of outstanding 2024 Purchase Warrants, which were originally issued

under the Registrant's Prior Registration Statement. Calculated pursuant to Rule 457(g) under the Securities Act, the proposed maximum offering price per unit and maximum aggregate offering price are based on the per share exercise price of the 2024 Purchase Warrants and are presented for informational purposes only. Pursuant to Rule 416 under the Securities Act, this registration statement also covers an indeterminate number of additional shares of common stock that may become issuable upon exercise of the 2024 Purchase Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

4

(4) Represents 361,011 shares of common stock issuable upon exercise of outstanding 2023 Purchase Warrants, which were originally issued under the Registrant's Prior Registration Statement. Calculated pursuant to Rule 457(g) under the Securities Act, the proposed maximum offering price per unit and maximum aggregate offering price are based on the per share exercise price of the 2023 Purchase Warrants and are presented for informational purposes only. Pursuant to Rule 416 under the Securities Act, this registration statement also covers an indeterminate number of additional shares of common stock that may become issuable upon exercise of the 2023 Purchase Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

Table 2: Fee Offset Claims and Sources ☐Not Applicable

		Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rules 457(b) and 0-11(a)(2)												
Fee Offset Claims												
Fee Offset Sources												
Rule 457(p)												
Fee Offset Claims	1	Bionano Genomics, Inc.	S-3	333-270459	03/10/2023		\$7,909.27	Unallocated (Universal) Shelf	Unallocated (Universal) Shelf		\$90,911,169.42	
Fee Offset Sources		Bionano Genomics, Inc.	S-3	333-270459		03/10/2023						\$10,018.41

Rule 457(p) Statement of Withdrawal, Termination, or Completion:

1

(5) Pursuant to Rule 457(p) under the Securities Act, the Registrant is offsetting the total registration fee of \$7,909.27 due under this registration statement against the filing fee previously paid in connection with unsold securities registered under the Prior Registration Statement, which was initially filed on March 10, 2023. The unsold securities associated with the fee offset claimed consist of an aggregate of 1,332,628 shares of common stock issuable upon exercise of the 2025 Purchase Warrants, the Series C Warrants, the 2024 Purchase Warrants and the 2023 Purchase Warrants, which remain outstanding and have not been exercised. Such unsold securities have an unsold aggregate offering amount of \$90,911,169.42, and the Registrant paid a filing fee of \$10,018.41 in connection with the unsold securities associated with the fee offset claimed, calculated at the fee rate in effect at the time of the filing of the Prior Registration Statement. Of that amount, \$7,909.27 is being used to offset the registration fee due under this registration statement, and the remaining \$2,109.14 is not being applied hereto. As a result, no filing fee is due with this registration statement. The offering of the securities associated with the fee offset claimed herein has been terminated or completed, and such securities remain unsold.

Table 3: Combined Prospectuses ☑Not Applicable

	Security Type	Security Class Title	Amount of Securities Previously Registered	Maximum Aggregate Offering Price of Securities Previously Registered	Form Type	File Number	Initial Effective Date
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