

PROSPECTUS SUPPLEMENT
(To Prospectus dated May 10, 2023)

22,900,000 Shares of Common Stock

Pre-Funded Warrants to Purchase up to 16,782,540 Shares of Common Stock

Purchase Warrants to Purchase up to 39,682,540 Shares of Common Stock

Up to 56,465,080 Shares of Common Stock Issuable Upon Exercise of the Pre-Funded Warrants and the Purchase Warrants

Pursuant to this prospectus supplement and the accompanying prospectus, we are offering in a registered direct offering to certain purchasers (i) 22,900,000 shares of our common stock, par value \$0.0001 per share (the “Shares”), (ii) pre-funded warrants to purchase 16,782,540 shares of our common stock (the “Pre-Funded Warrants”) and (iii) warrants to purchase 39,682,540 shares of our common stock (the “Purchase Warrants,” and together with the Pre-Funded Warrants, the “Warrants”). The Shares and the Warrants are referred to collectively as our “Securities.” This prospectus supplement also relates to the offering of up to 56,465,080 shares of common stock issuable upon the exercise of the Warrants (the “Warrant Shares”).

The Shares and Pre-Funded Warrants will each be sold in combination with an accompanying Purchase Warrant to purchase one share of common stock for each Share or Pre-Funded Warrant sold. The Shares, the Pre-Funded Warrants and the Purchase Warrants are immediately separable and will be issued separately. The Pre-Funded Warrants will be exercisable immediately upon issuance until exercised in full and are exercisable for one share of our common stock. The purchase price of each Pre-Funded Warrant is equal to the combined purchase price at which a Share and the accompanying Purchase Warrant is sold in this offering, minus \$0.001, which equals the exercise price of each Pre-Funded Warrant of \$0.001 per share of common stock. The Purchase Warrants will have an exercise price of \$0.252 per share, and will be exercisable beginning on the effective date of stockholder approval of the issuance of the shares of common stock upon exercise of the Purchase Warrants (“Stockholder Approval”). The Purchase Warrants will expire on the five-year anniversary of the Stockholder Approval.

Our common stock is listed on The Nasdaq Capital Market under the symbol “BNGO.” On January 3, 2025, the closing price of our common stock was \$0.3167 per share. There is no established public trading market for the Pre-Funded Warrants or the Purchase Warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Pre-Funded Warrants or the Purchase Warrants on any securities exchange or recognized trading system.

We have engaged H.C. Wainwright & Co., LLC (the “placement agent”), as our exclusive placement agent in connection with this offering. The placement agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. We have agreed to pay the placement agent the fees set forth in the table below, which assumes no exercise of the Purchase Warrants. See “Plan of Distribution” in this prospectus supplement for more information regarding these arrangements.

| | Per Share and accompanying Purchase Warrant | Per Pre-Funded Warrant and accompanying Purchase Warrant | Total |
|-------------------------------------|--|--|----------------|
| Offering price | \$0.25200 | \$0.25100 | \$9,983,217.54 |
| Placement agent fees ⁽¹⁾ | \$0.01512 | \$0.01512 | \$ 600,000.00 |
| Proceeds to us before expenses | \$0.23688 | \$0.23588 | \$9,383,217.54 |

(1) See the section titled “Plan of Distribution” beginning on page S-22 of this prospectus supplement for more information regarding the compensation to be received by the placement agent.

Our business and an investment in our common stock involve significant risks. These risks are described under the caption “Risk Factors” beginning on page S-5 of this prospectus supplement, page 6 of the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of this offering or passed upon the accuracy or adequacy of this prospectus supplement and the accompanying prospectus. Any representation to the contrary is a criminal offense.

Delivery of the securities in this offering is expected to be made on or about January 6, 2025, subject to satisfaction of certain closing conditions.

H.C. Wainwright & Co.

The date of this prospectus supplement is January 3, 2025

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus is a part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”), utilizing a “shelf” registration process. This prospectus supplement describes the specific terms of this offering and also adds to and updates the information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The accompanying prospectus gives more general information, some of which may not apply to this offering. If there is a difference between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference, you should rely on the information in this prospectus supplement. Generally, when we refer to the prospectus, we are referring to this prospectus supplement and the accompanying prospectus combined.

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

We are offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and this offering of our securities in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, this offering of our securities and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do 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 supplement and the accompanying 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 supplement and the accompanying prospectus are the property of their respective owners. We do not intend our use or display of other companies’ trademarks, trade names or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other companies or products.

PROSPECTUS SUPPLEMENT SUMMARY

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

Company Overview

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

Recent Developments

Financial and Business Results

- Revenue for the nine-month period ended September 30, 2024 was \$22.6 million, a decrease of 11% compared to the same period in 2023.
- The installed base of OGM systems, including Saphyr®, was 368 as of September 30, 2024, an increase of approximately 22% from a total installed base of 301 as of September 30, 2023.
- For the nine-month period ended September 30, 2024, total flowcells sold reached 22,249, an increase of approximately 17% over the 19,064 flowcells sold in the same period of 2023.

The financial performance measures and business results presented above as of and for the year ended December 31, 2023 are derived from our audited financial statements for that period. The financial performance measures and business results presented above as of and for the nine-month period ended September 30, 2024, are derived from our unaudited financial statements for that period.

Settlement Agreement and First Amendment to Securities Purchase Agreement and Debentures

On December 31, 2024, we entered into a settlement agreement and amendment (the “Amendment”) relating to our outstanding senior secured convertible debentures due May 24, 2026 (the “Debentures”) with certain accredited investors (the “Investors”) and JGB Collateral LLC, as collateral agent for the Investors (the “Collateral Agent”). Pursuant to the Amendment, the parties agreed that there will be no redemptions of any of the Debentures for the month of December 2024 and also agreed to modify certain terms of the Debentures, including to: reduce the maximum monthly redemption payable to Investors from \$1,000,000 to \$500,000 from January 2025 to July 2025; increase the maximum monthly redemption payable to Investors from \$1,000,000 to \$1,375,000 beginning in August 2025 until the Debentures are repaid in full; and reduce the conversion price to convert outstanding principal amounts of the Debentures to shares of the Company’s common stock from \$2.00 to \$0.27 (the “Conversion Price Adjustment”). As a result of his Conversion Price Adjustment, the \$15,000,000 outstanding aggregate principal amount of the Debentures will be convertible into 55,555,556 shares of common stock, of which 45,555,556 shares have not been previously registered under the Securities Act of 1933, as amended (the “Securities Act”). As consideration for the Amendment, the Company agreed to issue the Investors 5,000,000 shares of the Company’s common stock and to forbear from issuing a redemption notice under the Debentures to the Investors prior to July 31, 2025.

October 2024 Offering

On October 30, 2024, we entered into a securities purchase agreement with certain institutional investors for the sale of (i) in a registered direct offering priced at-the-market consistent with the rules of the Nasdaq Stock Market (the “October 2024 Offering”): (a) an aggregate of 9,881,113 shares of our common stock, (b) Series C warrants to

purchase up to an aggregate of 9,881,113 shares of our common stock (the “Series C Warrants”) and (iii) Series D warrants to purchase up to an aggregate of 9,881,113 shares of our common stock (the “Series D Warrants,” and together with the Series C Warrants, the “October 2024 Purchase Warrants”). Each share of our common stock sold pursuant to the purchase agreement in the October 2024 Offering was accompanied by one Series C Warrant and one Series D Warrant. The aggregate gross proceeds to us from the October 2024 Offering were approximately \$3.0 million (excluding up to \$6.0 million of aggregate gross proceeds that may be received in the future upon the cash exercise of the October 2024 Purchase Warrants), before deducting placement agent fees and other offering expenses payable by us. We received net proceeds of approximately \$2.8 million from the October 2024 Offering.

Nasdaq Notice

On July 12, 2024, the Company received a letter (the “Notice”) from The Nasdaq Stock Market LLC (“Nasdaq”) advising the Company that for 30 consecutive trading days preceding the date of the Notice, the bid price of the Company’s common stock had closed below the \$1.00 per share minimum required for continued listing on The Nasdaq Capital Market (the “Minimum Bid Price Requirement”). The Notice has no effect on the listing of the Company’s common stock, which continues to trade on The Nasdaq Capital Market under the symbol “BNGO.” The Company has 180 calendar days following the date of the Notice to regain compliance with the Minimum Bid Price Requirement.

Corporate Information

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

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

Implications of Being a Smaller Reporting Company

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

THE OFFERING

| | |
|---|---|
| Common Stock Offered by Us | 22,900,000 shares. |
| Pre-Funded Warrants Offered by Us | Pre-Funded Warrants to purchase up to 16,782,540 shares of our common stock. Each Pre-Funded Warrant will have an initial exercise price per share of \$0.001, subject to certain adjustments. The purchase price of each Pre-Funded Warrant is equal to the combined purchase price at which a Share and the accompanying Purchase Warrant is being sold in this offering, minus \$0.001. The Pre-Funded Warrants are exercisable immediately and may be exercised at any time until all of the Pre-Funded Warrants are exercised in full. For more information, see the section titled “Description of Securities We Are Offering—Pre-Funded Warrants” on page S-13 of this prospectus supplement. This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the Pre-Funded Warrants. |
| Purchase Warrants Offered by Us | Purchase Warrants to purchase up to 39,682,540 shares of our common stock. The Purchase Warrants have an exercise price of \$0.252 per share, and will be exercisable beginning on the effective date of Stockholder Approval. The Purchase Warrants will expire on the five-year anniversary of the Stockholder Approval. For more information, see the section titled “Description of Securities We Are Offering—Purchase Warrants” on page S-14 of this prospectus supplement. This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the Purchase Warrants. |
| Common Stock to be Outstanding after this Offering | 139,824,247, assuming no exercise of the Pre-Funded Warrants or the Purchase Warrants. |
| Use of Proceeds | We expect to receive net proceeds from this offering of approximately \$9.0 million, after deducting the placement agent fees and estimated offering expenses payable by us and assuming no exercise of the Pre-Funded Warrants or the Purchase Warrants. 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, repayment or redemption of existing indebtedness and capital expenditures. See the section titled “Use of Proceeds.” |
| Risk Factors | Investing in our securities involves a high degree of risk. See the section titled “Risk Factors” on page S-5 of this prospectus supplement and under similar headings in the accompanying prospectus and other documents incorporated by reference herein. |
| Nasdaq Capital Market Symbol | Our common stock is listed on The Nasdaq Capital Market under the symbol “BNGO.” There is no established public trading market for the Pre-Funded Warrants or the Purchase Warrants and we do not expect a market to develop. In addition, we do not intend to apply for listing of the Pre-Funded Warrants or the Purchase Warrants on any securities exchange or recognized trading system. |

The number of our shares of common stock shown above to be outstanding after this offering is based on 116,924,247 shares of common stock outstanding as of January 3, 2025. This number excludes the Warrant Shares issuable upon exercise of the Pre-Funded Warrants and the Purchase Warrants, and also excludes the following, all as of January 3, 2025:

- 3,344,626 shares of common stock issuable upon the exercise of outstanding stock options with a weighted-average exercise price of \$15.592 per share;
- 85,217,716 shares of common stock issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$1.52 per share;
- 55,555,556 shares of common stock issuable upon the exercise of outstanding convertible notes with a conversion price of \$0.27 per share;
- 48,954 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;
- 4 shares of our common stock reserved for issuance under our 2018 Employee Stock Purchase Plan (“ESPP”), as well as any future increases in the number of shares of our common stock reserved for issuance under the ESPP; and
- 3,160,828 shares of our common stock reserved for issuance under our 2018 Equity Incentive Plan.

In addition, except as otherwise indicated, all the information in this prospectus supplement assumes:

- no exercise of the Pre-Funded Warrants or the Purchase Warrants; and
- no exercise or settlement, as applicable, of the outstanding stock options, warrants or convertible notes described in this prospectus supplement.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the following risk factors and the risk factors discussed under the section titled “Risk Factors” contained in our Annual Report on Form 10-K for the year ended December 31, 2023 and our Quarterly Reports on Form 10-Q for the three-month periods ended September 30, 2024, June 30, 2024 and March 31, 2024, as may be updated by our subsequent filings, which are incorporated by reference into this prospectus supplement and the accompanying prospectus in their entirety, together with all of the other information contained in this prospectus supplement and the accompanying prospectus or incorporated by reference into this prospectus supplement and the accompanying prospectus. 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.

Additional Risks Related to this Offering

You may experience future dilution as a result of future equity offerings, or the conversion, exercise or vesting and settlement of outstanding securities.

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

In addition, as a result of the Conversion Price Adjustment to our outstanding Debentures, the \$15,000,000 outstanding aggregate principal amount of the Debentures will be convertible into an aggregate of 55,555,556 shares of our common stock, which represents an increase of 45,555,556 shares of common stock underlying such Debentures prior to the adjustment. To the extent that some or all of the Debentures are converted pursuant to their terms, investors purchasing our securities in this offering may experience further dilution in the future.

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

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

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 \$1.78 on January 8, 2024 and a low price of \$0.20 on December 24, 2024 (as adjusted for the reverse stock split effectuated on August 3, 2023). During

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this time, the price per share of common stock has ranged from an intra-day low of \$0.19 per share to an intra-day high of \$1.90 per share (as adjusted for the reverse stock split).

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

- our commercial progress in marketing and selling our genome analysis systems, including sales and revenue trends;
- changes in laws or regulations applicable to our systems;
- adverse developments related to our laboratory facilities;
- increased competition in the diagnostics services industry;
- changes in the structure or funding of research at academic and governmental research institutions, as well as pharmaceutical, biotechnology and contract research companies, including changes that would affect their ability to purchase our products, consumables and technologies;
- the failure to obtain and/or maintain coverage and adequate reimbursement for our Bionano Laboratories products and diagnostic assays and patients' willingness to pay out-of-pocket in the absence of such coverage and adequate reimbursement;
- the failure of our customers to obtain and/or maintain coverage and adequate reimbursement for their services using our Saphyr 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;

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- regulatory or legal developments in the United States and other countries;
- disputes or other developments relating to proprietary rights, including our ability to adequately protect our proprietary rights in our technologies;
- significant lawsuits, including patent or stockholder litigation;
- natural disasters, infectious diseases, conflict, including the ongoing military conflict between Russia and Ukraine and the related sanctions, the Israel-Hamas war, civil unrest, epidemics or pandemics including COVID-19, outbreaks, resurgences or major catastrophic events;
- general political and economic conditions, including recent and potential future disruptions in access to bank deposits or lending commitments due to bank failures;
- our cost savings initiative announced in March 2024;
- other events or factors, many of which are beyond our control; and
- other uncertainties affecting us including those described in the sections titled “Risk Factors” in this prospectus supplement, in our most recent Annual Report on Form 10-K, in our Quarterly Reports on Form 10-Q and in our Current Reports on Form 8-K filed with the SEC.

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

Holders of the Pre-Funded Warrants and the Purchase Warrants will have no rights as stockholders until they acquire our common stock.

Until you acquire shares of our common stock upon exercise of the Pre-Funded Warrants or the Purchase Warrants, you will have no rights with respect to our common stock issuable upon exercise of the Pre-Funded Warrants or the Purchase Warrants, including the right to receive dividend payments, vote or respond to tender offers. Upon exercise of your Pre-Funded Warrants or Purchase Warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

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

Although our common stock is listed on The Nasdaq Capital Market, an active trading market for our shares may not be sustained. If an active market for our common stock does not continue, it may be difficult for you to sell your shares, including shares you may purchase in this offering, without depressing the market price for the shares or sell your shares at all. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration.

There is no public market for the Pre-Funded Warrants or the Purchase Warrants being offered by us in this offering.

There is no established public trading market for the Pre-Funded Warrants or the Purchase Warrants being sold in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the Pre-Funded Warrants or the Purchase Warrants on any securities exchange or recognized trading system. Without an active market, the liquidity of the Pre-Funded Warrants and the Purchase Warrants will be limited.

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.

Risks Related to Our Financial Condition and Need for Additional Capital

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

Since our inception, we have incurred recurring net losses. We incurred net losses of \$91.9 million and \$188.6 million, and used cash in operations of \$62.4 million and \$95.4 million for the nine months ended September 30, 2024 and 2023, respectively. As of September 30, 2024, we had an accumulated deficit of \$673.1 million. We cannot predict if we will be profitable in the near future or at all. We expect that our losses will continue for the foreseeable future as we plan to invest significant additional funds toward the expansion of our commercial organization, research and development efforts and capital expenditures, among other things. Our recent acquisitions have increased our expenses and we expect that any future acquisitions of businesses, assets, products or technologies will further increase our expenses, which may result in additional losses. We also expect significant increases in our stock-based compensation expense in future periods, reflecting higher stock option valuations as a public company and the issuance of additional equity awards. In addition, we incur significant legal, accounting and other expenses as a result of being a public company, especially as we no longer qualify as an emerging growth company and are therefore required to comply with additional disclosure and compliance requirements. These factors, among others, will make it hard for us to achieve and sustain profitability. We may also incur significant losses in the future for a number of other reasons, many of which are beyond our control, including the level of market acceptance of our products, the introduction of competitive products and technologies, our future product development efforts, our market penetration and our margins, as well as the other risks described below.

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

Since inception, we have experienced recurring operating losses and negative cash flows from operating activities, and have significant accumulated deficit. We expect to continue to generate operating losses and consume significant cash resources for the foreseeable future. We expect that with our existing cash, cash equivalents and short-term investments and after taking into account inaccessible “restricted cash” under the terms of the transaction under the securities purchase agreement (the “JGB Purchase Agreement”) with certain accredited investors and JGB Collateral LLC, based on the Company’s current business plans we believe that we will be able to fund our operating expenses and capital expenditure requirements through at least the first quarter of 2025. Our available cash, cash-equivalents and short-term investments following the consummation of this transaction will not be sufficient to achieve cash-flow break even. As noted in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2024 filed with the SEC on November 14, 2024, based on recurring losses from operations incurred since inception, the expectation of continued operating losses and the need to raise additional capital to finance our future operations, we had determined that there is substantial doubt about our ability to continue as a going concern within 12 months of such Quarterly Report. We will continue to seek to raise additional capital, but without additional financing we may not be able to continue as a going concern. If we are unable to continue as a going concern, we may have to reorganize or liquidate our business and may receive less than the value at which those assets are carried on our consolidated financial statements, and investors may lose all or a part of their investment. The Board has established a strategy committee to work with the Company and outside advisors in evaluating our options and considering alternatives that we believe will maximize stakeholder value, including any of the following or a combination thereof: debt financing, equity investments, combinations with other companies, or the sale of all or part of the company. There can be no assurances that any transactions will be completed and if we are not able to raise sufficient additional capital to fund our future operations, we may potentially seek relief available under applicable insolvency laws. We do not intend to make further announcements regarding this process unless and until the Board approves a specific transaction or otherwise determines that further disclosure is appropriate.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the accompanying 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 the Private Securities Litigation Reform Act of 1995. These statements are based on our management's current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the sections titled "Business," "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" incorporated by reference from our most recent Annual Report on Form 10-K and our most recent Quarterly Report on Form 10-Q filed with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC.

Any statements in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein or therein, 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. Within the meaning of Section 27A of the Securities Act and Section 21E of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), these forward-looking statements may include, but are not limited to, statements regarding:

- our ability to finance our operations and business initiatives, including our ability to successfully implement our strategic restructuring plan, any strategic alternatives and other cost-reduction activities;
- the size and growth potential of the markets for our products, and our ability to serve those markets;
- the rate and degree of market acceptance of our products;
- our ability to manage the growth of our business and integrate acquired businesses;
- our ability to expand our commercial organization to address effectively existing and new markets that we intend to target;
- the impact from future regulatory, judicial, and legislative changes or developments in the U.S. and foreign countries;
- our ability to successfully execute our strategy and meet anticipated goals and milestones;
- our ability to compete effectively in a competitive industry;
- the introduction of competitive technologies or improvements in existing technologies and the success of any such technologies;
- the performance of our third-party contract sales organizations, suppliers and manufacturers;
- our ability to attract and retain key scientific or management personnel;
- the accuracy of our estimates regarding expenses, future revenues, reimbursement rates, capital requirements and needs for additional financing;
- the impact of geopolitical and macroeconomic developments, such as the ongoing conflict between Ukraine and Russia and related sanctions, the Israel-Hamas war, potential future disruptions in access to bank deposits or lending commitments due to bank failures, global pandemics, inflation, increased cost of goods, supply chain issues, and global financial market conditions; on our business and operations, as well as the business or operations of our suppliers, customers, manufacturers, research partners and other third parties with whom we conduct business and our expectations with respect to the duration of such impacts and the resulting effects on our business;
- our expected cash runway, ability to realize the anticipated benefits and synergies of our recent and any future acquisitions or other strategic transactions;
- use of our existing cash and cash equivalents, available-for-sale securities and the intended use of the net proceeds from this offering of our securities under this prospectus supplement;
- our expected cash runway, ability to continue as a going concern, ability to service our debt obligations, and our ability to obtain funding for our operations;
- our ability to attract collaborators and strategic partnerships; and

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- other uncertainties affecting us including those described in the sections titled “Risk Factors” in this prospectus supplement, in our most recent Annual Report on Form 10-K, in our Quarterly Reports on Form 10-Q and in our Current Reports on Form 8-K filed with the SEC.

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

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

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

USE OF PROCEEDS

We expect to receive approximately \$9.0 million in net proceeds from this offering, after deducting the placement agent fees and estimated offering expenses payable by us and assuming no exercise of the Purchase Warrants.

We currently 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, repayment or redemption of existing indebtedness and capital expenditures.

As of September 30, 2024, we had \$12.0 million in cash, cash equivalents and short-term investments. Based on our current business plans, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, and after taking into account inaccessible “restricted cash” under the terms of the transaction under the JGB Purchase Agreement, will only be sufficient to fund our operating expenses and capital expenditure requirements through at least the first quarter of 2025. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect, requiring us to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. The various ways we could raise additional capital carry potential risks, see “Risk Factors—Risks Related to Our Financial Condition and Need for Additional Capital—We have incurred recurring net losses since we were formed and expect to incur losses in the future. We cannot be certain that we will achieve or sustain profitability” and “—Our recurring losses, negative cash flows and significant accumulated deficit have raised substantial doubt regarding our ability to continue as a going concern.”

Our expected use of net proceeds from this offering represents our intentions based on our present plans and business conditions, which could change as our plans and business conditions evolve. 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. We may also use a portion of the net proceeds from this offering to in-license, acquire, or invest in complementary businesses, technologies, products or assets. However, we have no current plans, commitments or obligations to do so. As of the date of this prospectus supplement, 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 retain broad discretion over the use of such proceeds. Pending these uses, we intend to invest the net proceeds primarily in money market mutual funds, obligations of the U.S. government and its agencies, money market instruments including commercial paper and negotiable certificates of deposit and corporate bonds.

The net proceeds from this offering, together with our existing cash and cash equivalents and available-for-sale securities, will not be sufficient for us to achieve cash-flow break even and we expect to need to seek additional capital opportunistically based on favorable market conditions or strategic considerations alternatives in the future. See “Risk Factors—Risks Related to Our Financial Condition and Need for Additional Capital—Our recurring losses, negative cash flows and significant accumulated deficit have raised substantial doubt regarding our ability to continue as a going concern.” We will continue to seek to raise additional capital, but without additional financing we may not be able to continue as a going concern. If we are unable to continue as a going concern, we may have to reorganize or liquidate our business and may receive less than the value at which those assets are carried on our consolidated financial statements, and investors may lose all or a part of their investment. The Board has established a strategy committee to work with the Company and outside advisors in evaluating our options and considering alternatives that we believe will maximize stakeholder value, including any of the following or a combination thereof: debt financing, equity investments, combinations with other companies, or the sale of all or part of the company. There can be no assurances that any transactions will be completed and if we are not able to raise sufficient additional capital to fund our future operations, we may potentially seek relief available under applicable insolvency laws.

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 WE ARE OFFERING

The following is a summary of the material terms and provisions of the common stock, Pre-Funded Warrants and Purchase Warrants that are being offered hereby. This summary is subject to, and qualified in its entirety by, the provisions of the form of Pre-Funded Warrant and the form of Purchase Warrant, which will be filed with the SEC as exhibits to a Current Report on Form 8-K in connection with this offering and incorporated by reference into the registration statement of which this prospectus supplement and the accompanying prospectus form a part. Prospective investors should carefully review the terms and provisions of the form of Pre-Funded Warrant and the form of Purchase Warrant for a complete description of the terms and conditions of such warrants. See the section titled “Where You Can Find Additional Information” in this prospectus supplement.

We are offering (i) 22,900,000 shares of our common stock, (ii) Pre-Funded Warrants to purchase up to 16,782,540 shares of our common stock and (iii) Purchase Warrants to purchase up to 39,682,540 shares of our common stock. The Shares, the Pre-Funded Warrants and the Purchase Warrants will be sold at the same time. The Shares, the Pre-Funded Warrants and the Purchase Warrants are immediately separable and will be issued separately. The Warrant Shares, if any, are also being offered pursuant to this prospectus supplement and the accompanying prospectus.

Common Stock

As of the date of this prospectus supplement, our amended and restated certificate of incorporation, as amended, authorizes 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. For more information, see “Description of Capital Stock” in the accompanying prospectus. Our common stock is listed on the Nasdaq Capital Market under the symbol “BNGO”.

Pre-Funded Warrants

Duration and Exercise Price. Each Pre-Funded Warrant offered hereby will have an initial exercise price per share equal to \$0.001 per share. The Pre-Funded Warrants are immediately exercisable and do not expire until exercised in full. The exercise price and number of shares of our common stock issuable upon exercise is 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 Pre-Funded 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 Pre-Funded Warrant to the extent that the holder would own more than 4.99% (or, upon election of the holder, 9.99%) of the outstanding common stock immediately after exercise, except that 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 Pre-Funded 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 Pre-Funded Warrants. No fractional shares of our common stock will be issued in connection with the exercise of a pre-funded warrant. In lieu of fractional shares, we will round to the next whole share.

Cashless Exercise. At any time, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise the net number of shares of our common stock determined according to a formula set forth in the Pre-Funded Warrants.

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

Exchange Listing. There is no established public trading market for the Pre-Funded Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Pre-Funded Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the Pre-Funded Warrants will be limited.

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

Fundamental Transaction. In the event of a fundamental transaction, as described in the form of Pre-Funded 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 Pre-Funded Warrants will be entitled to receive upon exercise of the Pre-Funded Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction.

Purchase Warrants

Duration and Exercise Price. Each Purchase Warrant offered hereby will have an initial exercise price per share equal to \$0.252 per share. The Purchase Warrants are exercisable beginning on the effective date of the Stockholder Approval. The Purchase Warrants will expire on the five-year anniversary of the Stockholder Approval. The exercise price and number of shares of our common stock issuable upon exercise is 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 Purchase 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 Purchase Warrant to the extent that the holder would own more than 4.99% (or, upon election of the holder, 9.99%) of the outstanding common stock immediately after exercise, except that 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 Purchase 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 Purchase Warrants. No fractional shares of our common stock will be issued in connection with the exercise of a Purchase Warrant. In lieu of fractional shares, we will round to the next whole share.

Cashless Exercise. If at the time of exercise of a Purchase Warrant there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the shares to be issued upon exercise of the Purchase Warrant, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise the net number of shares of our common stock determined according to a formula set forth in the Purchase Warrants.

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

Exchange Listing. There is no established public trading market for the Purchase Warrants, and we do not expect a market to develop. In addition, we do not intend to list the Purchase Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the Purchase Warrants will be limited.

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

Fundamental Transaction. In the event of a fundamental transaction, as described in the form of Purchase 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 Purchase Warrants will be entitled to receive upon exercise of the Purchase Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Purchase Warrants immediately prior to such fundamental transaction. Notwithstanding the foregoing, within 30 days after the consummation of a fundamental transaction, we may repurchase any Purchase Warrants from the holder of such warrant pursuant to the terms and conditions described in the form of Purchase Warrant by paying to the holder an amount equal to the Black Scholes Value (as defined in each Purchase Warrant) of the remaining unexercised portion of the Purchase Warrant on the date of the fundamental transaction.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

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

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

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

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

Treatment of Pre-Funded Warrants

Although it is not entirely free from doubt, we believe a Pre-Funded Warrant should be treated as a Share for U.S. federal income tax purposes and a holder of Pre-Funded Warrants should generally be taxed in the same manner as a holder of Shares, as described below. Accordingly, no gain or loss should be recognized upon the exercise of a Pre-Funded Warrant and, upon exercise, the holding period of a Pre-Funded Warrant should carry over to the Share received. Similarly, the tax basis of the Pre-Funded Warrant should carry over to the Share received upon exercise, increased by the exercise price of \$0.001 per share. However, our characterization is not binding on the IRS, and the IRS may treat the Pre-Funded Warrants as warrants to acquire our Shares. If so, the amount and character of your gain with respect to an investment in our Pre-Funded Warrants could change. Accordingly, each holder should consult his, her or its own tax advisor regarding the risks associated with the acquisition of Pre-Funded Warrants pursuant

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to this offering (including potential alternative characterizations). Except where specifically noted below, the balance of this discussion generally assumes that the characterization described above is respected for U.S. federal income tax purposes. However, some portions of the below discussion make reference to potential consequences associated with the acquisition, ownership and disposition of the Pre-Funded Warrants independent of their potential characterization as Shares for U.S. federal income tax purposes.

Allocation of Purchase Price

Each purchaser of Shares or Pre-Funded Warrants must allocate its purchase price for such Shares or Pre-Funded Warrants, as applicable, and each associated purchase warrant, based on the respective relative fair market values of each at the time of issuance. This allocation of the purchase price will establish the holder's initial tax basis for U.S. federal income tax purposes for each Share, Pre-Funded Warrant and purchase warrant. A holder's allocation of the purchase price among the Shares, Pre-Funded Warrants and Purchase Warrants is not binding on the IRS or the courts, and no assurance can be given that the IRS or the courts will agree with a holder's allocation. Each holder should consult its own tax advisor regarding the allocation of the purchase price among the Shares, Pre-Funded Warrants and Purchase Warrants.

Tax Considerations Applicable to U.S. Holders

Definition of U.S. Holder

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

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

Exercise of Purchase Warrants

A U.S. holder generally will not recognize gain or loss on the exercise of a Purchase Warrant and the related receipt of Warrant Shares (unless cash is received in lieu of the issuance of a fractional Warrant Share). A U.S. holder's initial tax basis in a Warrant Share will be equal to the sum of (a) such U.S. holder's tax basis in the Purchase Warrant plus (b) the exercise price paid by such U.S. holder on the exercise of such Purchase Warrant. A U.S. holder's holding period in a Warrant Share received on the exercise of a Purchase Warrant generally should begin on the day after the date that such Purchase Warrant is exercised by such U.S. holder.

In certain circumstances, the Purchase Warrants may be exercised on a cashless basis. The U.S. federal income tax treatment of an exercise of a warrant on a cashless basis is not clear, and could differ from the consequences described above. It is possible that a cashless exercise could be a taxable event. U.S. holders are urged to consult their tax advisors as to the consequences of an exercise of a Purchase Warrant on a cashless basis, including with respect to their holding period and tax basis in the Warrant Share.

Distributions on the Shares or the Warrant Shares

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

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in the Shares or the Warrant Shares, as applicable. Any remaining excess will be treated as capital gain from the sale or exchange of such Shares or Warrant Shares, subject to the tax treatment described in “—Sale or Other Taxable Disposition of the Shares, Pre-Funded Warrants, Purchase Warrants or Warrant Shares.”

Sale or Other Taxable Disposition of the Shares, Pre-Funded Warrants, Purchase Warrants or Warrant Shares

Upon the sale, exchange or other taxable disposition of the Shares, Pre-Funded Warrants (other than by exercise), Purchase Warrants (other than by exercise) or Warrant Shares, a U.S. holder will generally recognize capital gain or loss equal to the difference between the amount of cash and the fair market value of any property received upon the sale, exchange or other taxable disposition and such U.S. holder’s adjusted tax basis in the Shares, Pre-Funded Warrants, Purchase Warrants or Warrant Shares. This capital gain or loss will be long-term capital gain or loss if the U.S. holder’s holding period in such Shares, Pre-Funded Warrants, Purchase Warrants or Warrant Shares is more than one year at the time of the sale, exchange or other taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. holders, including individuals, generally will be subject to reduced rates of U.S. federal income tax. The deductibility of capital losses is subject to certain limitations.

Lapse of Purchase Warrants

Upon the lapse or expiration of a Purchase Warrant, a U.S. holder will recognize a loss in an amount equal to such U.S. holder’s tax basis in the Purchase Warrant. Any such loss generally will be a capital loss and will be long-term capital loss if the Purchase Warrant is held for more than one year. Deductions for capital losses are subject to limitations.

Certain Adjustments to the Pre-Funded Warrants and the Purchase Warrants

The terms of each Pre-Funded Warrant and Purchase Warrant provide for an adjustment to the number of Warrant Shares for which the Pre-Funded Warrants or Purchase Warrant may be exercised and/or to the exercise price of the Pre-Funded Warrants or Purchase Warrant in certain events. Such an adjustment may be treated as a constructive distribution to a U.S. holder of the Pre-Funded Warrants or Purchase Warrants depending on the circumstances of such adjustment if, and to the extent that, such adjustment has the effect of increasing such U.S. holder’s proportionate interest in our “earnings and profits” or assets, depending on the circumstances of such adjustment. In addition, the failure to provide for such an adjustment (or to adequately adjust) may also result in a deemed distribution to U.S. holders of the Pre-Funded Warrants, Purchase Warrants or Shares. Any such constructive distribution may be taxable whether or not there is an actual distribution of cash or other property. However, such adjustments made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders thereof generally should not be considered to result in a constructive distribution. Generally, such deemed distributions will be taxable in the same manner as an actual distribution as described in “—Distributions on the Shares or the Warrant Shares,” except that it is unclear whether such deemed distributions would be eligible for the reduced tax rate applicable to certain dividends paid to non-corporate holders or the dividend-received deduction applicable to certain dividends paid to corporate holders. Generally, a U.S. holder’s tax basis in the underlying stock will be increased to the extent any such constructive distribution is treated as a dividend. Proposed U.S. Treasury Regulations address the amount of, timing of, and withholding obligations in respect to, constructive distributions made to holders of convertible securities such as the Pre-Funded Warrants or Purchase Warrants. These proposed regulations are effective for constructive distributions made on or after the date of finalization, but may generally be relied upon as to certain matters for constructive distributions that occur prior to such date. U.S. holders should consult their own tax advisors regarding the application of such regulations and other tax considerations relating to the possibility of constructive distributions.

Backup Withholding and Information Reporting

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

- fails to furnish the holder’s taxpayer identification number, which for an individual is ordinarily his or her social security number;
- furnishes an incorrect taxpayer identification number;

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- is notified by the IRS that the holder previously failed to properly report payments of interest or dividends; or
- fails to certify under penalties of perjury that the holder has furnished a correct taxpayer identification number and that the IRS has not notified the holder that the holder is subject to backup withholding.

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

Tax Considerations Applicable to Non-U.S. Holders

Definition of non-U.S. Holder

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

Exercise of Purchase Warrants

A non-U.S. holder generally will not recognize gain or loss on the exercise of a Purchase Warrant and the related receipt of warrant shares (unless cash is received in lieu of the issuance of a fractional warrant share and certain other conditions are present, as discussed under "—Gain on Sale, Exchange or Other Taxable Disposition of Our Securities"). See "—Tax Considerations Applicable to U.S. Holders—Exercise of Purchase Warrants." However, if a cashless exercise of Purchase Warrants results in a taxable exchange, as described in "—Tax Considerations Applicable to U.S. Holders—Exercise of Purchase Warrants," the rules described in "Gain on Sale, Exchange or Other Taxable Disposition of Our Securities" would apply.

Lapse of Purchase Warrants

If a non-U.S. holder allows a Purchase Warrant to expire unexercised, such non-U.S. holder will recognize a capital loss in an amount equal to such holder's tax basis in the Purchase Warrant. See "—Tax Considerations Applicable to U.S. Holders—Lapse of Warrants."

Certain Adjustments to the Pre-Funded Warrants and the Purchase Warrants

See the discussion of the rules applicable to constructive distributions on a Pre-Funded Warrants or Purchase Warrant in "—Tax Considerations Applicable to U.S. Holders—Certain Adjustments to the Warrants." If an adjustment to the number of Warrant Shares that will be issued on the exercise of the Pre-Funded Warrants or Purchase Warrants, or an adjustment to the exercise price of the Pre-Funded Warrants or Purchase Warrants, results in a constructive distribution, as described in "—Tax Considerations Applicable to U.S. Holders—Certain Adjustments to the Pre-Funded Warrants and Purchase Warrants," the rules described in "—Distributions on the Shares or the Warrant Shares" would apply. U.S. federal income tax required to be withheld on any portion of such constructive distribution that is treated as a dividend (as described in "—Distributions on the Shares or the Warrant Shares") may be withheld from warrant shares, sales proceeds subsequently paid or credited, or other amounts payable or distributable to a non-U.S. holder.

Distributions on the Shares or the Warrant Shares

We do not anticipate declaring or paying any future distributions. However, if we make distributions on the Shares or the Warrant Shares, such distributions will constitute dividends to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such non-U.S. holder's adjusted tax basis in the Shares or the Warrant Shares, as applicable. Any remaining excess will be treated as capital gain from the sale or exchange of such Shares or the Warrant Shares, subject to the tax treatment described in "—Gain on Sale, Exchange or Other Taxable Disposition of Our Securities" below.

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

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

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

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

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

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

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

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

established securities market, the Shares will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held the Shares or Warrant Shares, as applicable. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market. Disposition by a non-U.S. holder of Purchase Warrants (that are not expected to be regularly traded on an established securities market) may also be eligible for an exemption from withholding even if we are treated as a U.S. real property holding corporation, if on the date such Purchase Warrants were acquired by such non-U.S. holder such holdings had a fair market value no greater than the fair market value on that date of 5% of our regularly-traded common stock, provided that, if a non-U.S. holder holding our not-regularly traded Purchase Warrants subsequently acquires additional Purchase Warrants, then such interests would be aggregated and valued as of the date of the subsequent acquisition to apply this 5% limitation.

Backup Withholding and Information Reporting

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

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

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

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

Foreign Accounts

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

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of the entity, or otherwise qualifies for an exemption from these rules. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph.

The withholding provisions described above currently apply to dividends paid on our securities. The U.S. Treasury Department released proposed regulations which, if finalized in their present form, would eliminate the U.S. federal withholding tax of 30% applicable to the gross proceeds of a sale or other disposition of our securities. In its preamble to such proposed regulations, the U.S. Treasury Department stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

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

PLAN OF DISTRIBUTION

We have engaged H.C. Wainwright & Co., LLC (the “placement agent”), to act as our exclusive placement agent, on a reasonable best-efforts basis, in connection with this offering pursuant to this prospectus supplement and the accompanying prospectus. The terms of this offering are subject to market conditions and negotiations between us, the placement agent, and prospective investors. The engagement agreement does not give rise to any commitment by the placement agent to purchase any of the securities, and the placement agent will have no authority to bind us by virtue of the engagement agreement. The placement agent has no commitment to buy any of the securities offered pursuant to this prospectus supplement and the accompanying prospectus. The placement agent is not purchasing the securities offered by us in this offering and is not required to sell any specific number or dollar amount of securities, but will assist us in this offering on a reasonable best-efforts basis. Further, the placement agent does not guarantee that it will be able to raise new capital in any prospective offering. The placement agent may engage sub-agents or selected dealers to assist with the offering. We have entered into a securities purchase agreement directly with the investors in connection with this offering, and we will only sell to investors who have entered into the securities purchase agreement.

We expect to deliver the securities being offered pursuant to this prospectus supplement on or about January 6, 2025, subject to satisfaction of customary closing conditions.

Fees and Expenses

The following table shows, on a per Share, per Pre-Funded Warrant and total basis, the offering price, placement agent fees and proceeds, before expenses to us, assuming no exercise of the Pre-Funded Warrants or the Purchase Warrants.

| | Per Share and accompanying Purchase Warrant | Per Pre-Funded Warrant and accompanying Purchase Warrant | Total |
|-------------------------------------|--|--|----------------|
| Offering price | \$0.25200 | \$0.25100 | \$9,983,217.54 |
| Placement agent fees ⁽¹⁾ | \$0.01512 | \$0.01512 | \$ 600,000.00 |
| Proceeds to us before expenses | \$0.23688 | \$0.23588 | \$9,383,217.54 |

We have agreed to pay the placement agent in connection with this offering (i) a cash fee equal to 6.0% of the aggregate gross proceeds of this offering, (ii) \$50,000 for fees and expenses of the placement agent’s counsel and other out of pocket expenses, (iii) a non-accountable expense allowance of \$35,000 and (iv) \$15,950 for the clearing expenses.

We estimate that the total expenses payable by us in connection with this offering, excluding the placement agent fees and expenses referred to above, will be approximately \$0.3 million.

Right of First Refusal

In addition, we have granted a right of first refusal to the placement agent, subject to certain exceptions, pursuant to which it has the right to act as the joint book-running manager or joint placement agent, as applicable, with at least 35% of the economics, if we or our subsidiaries raise capital through certain public or private offerings of equity or debt securities (not including any at-the-market facility) at any time prior to the 9-month anniversary of the consummation of this offering.

Lock-up Agreements

We have agreed to be subject to a lock-up for a period of forty-five (45) days following the date of closing of the offering pursuant to this prospectus supplement and the accompanying prospectus. This means that, during the applicable lock-up period, we may not issue, enter into any agreement to issue or announce the issuance or proposed issuance of any of our common stock or any securities convertible or exercisable or exchangeable for, common stock, subject to certain exceptions.

We have also agreed, subject to certain exceptions, until the one (1) year anniversary following the date of closing of the offering, not to (i) issue or sell any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of common stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of common stock at any time after the initial issuance of such debt or equity securities, or (B) with a

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conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to our business or the market for our common stock, or (ii) enter into, or effect a transaction under, any agreement, including, but not limited to, an equity line of credit or an “at-the-market” facility, subject certain exceptions.

Regulation M

The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the shares sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the placement agent would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares by the placement agent acting as principal. Under these rules and regulations, the placement agent:

- may not engage in any stabilization activity in connection with our securities; and
- may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

Indemnification

We have agreed to indemnify the placement agent against certain liabilities, including certain liabilities arising under the Securities Act and to contribute to payments that the placement agent may be required to make for these liabilities.

Nasdaq Listing

Our common stock is listed on The Nasdaq Capital Market under the symbol “BNGO.” On January 3, 2025, the last reported sale price of our common stock on The Nasdaq Capital Market was \$0.3167 per share.

Other Relationships

The placement agent and its affiliates have provided, and may in the future provide, various investment banking, financial advisory and other financial services to us and our affiliates for which they have received, and in the future may receive, advisory or transaction fees, as applicable. The placement agent acted as placement agent for the October 2024 Offering and for registered direct offerings of our common stock and warrants to certain purchasers in April 2024 and July 2024, pursuant to which it received cash compensation. Except as disclosed in this prospectus supplement, we have no present arrangements with the placement agent for any services.

LEGAL MATTERS

Cooley LLP, which has acted as our counsel in connection with this offering, will pass on certain legal matters with respect to U.S. federal law in connection with this offering. Haynes and Boone, LLP, New York, New York is acting as counsel to the placement agent in connection with this offering.

EXPERTS

The consolidated financial statements of Bionano Genomics, Inc. (the “Company”) as of December 31, 2023 and 2022 and for each of the years then ended incorporated by reference in this prospectus supplement 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 supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and do not contain all of the information set forth or incorporated by reference in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. We file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including the Company. The address of the SEC website is www.sec.gov.

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

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

The following documents are incorporated by reference into this document:

- our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on [March 5, 2024](#);
- our Quarterly Reports on Form 10-Q for the three-month periods ended March 31, 2024, June 30, 2024 and September 30, 2024, filed with the SEC on [May 8, 2024](#), [August 7, 2024](#) and [November 14, 2024](#), respectively;
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2023 from our definitive proxy statement relating to our 2024 annual meeting of securityholders, filed with the SEC on [April 26, 2024](#).
- our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on [February 28, 2024](#) (with respect to Items 1.01 and 9.01 only), [March 5, 2024](#) (with respect to Item 2.05 only), [April 5, 2024](#) (with respect to Items 1.01 and 9.01 only), [April 8, 2024](#), [May 8, 2024](#) (with respect to Item 2.05 only), [May 28, 2024](#) (with respect to Items 1.01, 1.02, 2.03, 3.02, 8.01 and 9.01 only), [June 21, 2024](#), [July 8, 2024](#), [July 18, 2024](#), [September 9, 2024](#) (with respect to Items 2.05 and 5.02 only), [October 10, 2024](#), [October 31, 2024](#), [December 2, 2024](#) and [January 3, 2025](#); and
- the description of our common stock which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed on [August 17, 2018](#), including any amendments or reports filed for the purposes of updating this description.

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 supplement.

We also incorporate by reference into this prospectus supplement all documents (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement but prior to the termination of this offering of the common stock covered by this prospectus supplement and the accompanying prospectus. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements.

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

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



\$400,000,000

Common Stock
Preferred Stock
Debt Securities
Warrants

From time to time, we may offer and sell up to an aggregate amount of \$400,000,000 of any combination of the securities described in this prospectus in one or more offerings. We may also offer securities as may be issuable upon conversion, redemption, repurchase, exchange or exercise of any securities registered hereunder, including any applicable antidilution provisions.

This prospectus provides a general description of the securities we may offer. Each time we offer securities, we will provide specific terms of the securities offered in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before you invest in any of the securities being offered.

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

Our common stock is listed on the Nasdaq Capital Market under the trading symbol "BNGO." On March 8, 2023, the last reported sale price of our common stock was \$1.31 per share. The applicable prospectus supplement will contain information, where applicable, as to any other listing on the Nasdaq Capital Market or any securities market or other exchange of the securities, if any, covered by the applicable prospectus supplement.

We may sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts or options to purchase additional securities will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "Risk Factors" on page 6 of this prospectus as well as those contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

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

The date of this prospectus is May 10, 2023.

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ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may offer and sell from time to time in one or more offerings up to a total dollar amount of \$400,000,000 of any combination of the securities described in this prospectus.

This prospectus provides you with a general description of the securities we may offer. Each time we offer securities under this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of such securities and offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement or free writing prospectus, you should rely on the prospectus supplement or free writing prospectus, as applicable. You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading “Incorporation of Certain Information by Reference,” before investing in any of the securities offered.

THIS PROSPECTUS MAY NOT BE USED TO CONSUMMATE A SALE OF SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

Neither we, nor any agent, underwriter or dealer has authorized any person to give any information or to make any representation other than those contained or incorporated by reference into this prospectus, any applicable prospectus supplement or any related free writing prospectus prepared by or on behalf of us or to which we have referred you. This prospectus, any applicable supplement to this prospectus or any related free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus, any applicable supplement to this prospectus or any related free writing prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction.

You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered, or securities are sold, on a later date.

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 More Information.”

PROSPECTUS SUMMARY

This summary highlights selected information from this prospectus and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained herein, in any applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part. Unless the context requires otherwise, references in this prospectus to “Bionano,” “we,” “us” and “our” 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, or OGM, solutions, diagnostic services and software. We offer OGM solutions, including our Saphyr system, for applications across basic, translational and clinical research, and for other applications including cell bioprocessing quality control. Through our Bionano Laboratories business, we also provide diagnostic testing for patients with clinical presentations consistent with autism spectrum disorder and other neurodevelopmental disabilities. Through our BioDiscovery business, we offer an industry-leading, platform-agnostic software solution, our VIA software, which integrates next-generation sequencing and microarray 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. Through our Purigen business, we offer nucleic acid extraction and purification solutions using proprietary isotachopheresis technology, through our Ionic Purification system.

Corporate Information

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

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

The Securities We May Offer

We may offer shares of our common stock and preferred stock, various series of debt securities and warrants to purchase any of such securities, up to a total aggregate amount of \$400,000,000, either individually or in combination with other securities, from time to time in one or more offerings under this prospectus, together with the applicable prospectus supplement and any related free writing prospectus, at prices and on terms to be determined by market conditions at the time of the relevant offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion, exercise, exchange or sinking fund terms, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange;
- ranking, if applicable;
- restrictive covenants, if any;
- voting or other rights, if any; and
- important U.S. federal income tax considerations.

The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

We may sell the securities directly to investors or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

- the names of those underwriters or agents;
- applicable fees, discounts and commissions to be paid to them;
- details regarding options to purchase additional securities, if any; and
- the estimated net proceeds to us.

Common Stock. We may issue shares of our common stock from time to time. Holders of our common stock are entitled to one vote per share for the election of directors and on all other matters that require stockholder approval. Subject to any preferential rights of any then outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any then outstanding preferred stock. Our common stock does not carry any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock, or any redemption rights.

Preferred Stock. We may issue shares of our preferred stock from time to time, in one or more series. Under our amended and restated certificate of incorporation, as amended, our board of directors has the authority, without further action by stockholders, to designate up to 10,000,000 shares of preferred stock in one or more series and to

fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference and sinking fund terms, any or all of which may be greater than the rights of the common stock. To date, none of the 10,000,000 authorized shares of preferred stock have been designated by our board of directors. Convertible preferred stock will be convertible into our common stock or exchangeable for our other securities. Conversion may be mandatory or at the option of the holders of our preferred stock and would be at prescribed conversion rates.

We will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designation relating to that series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the applicable prospectus supplement (and any related free writing prospectus that we may authorize to be provided to you) related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Debt Securities. We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. The senior debt securities will rank equally with any other unsecured and unsubordinated debt. The subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner described in the instrument governing the debt, to all of our senior indebtedness. Convertible debt securities will be convertible into our common stock or preferred stock. Conversion may be mandatory or at the holder's option and would be at prescribed conversion rates.

The debt securities will be issued under one or more documents called indentures, which are contracts between us and a national banking association or other eligible party, as trustee. In this prospectus, we have summarized certain general features of the debt securities. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the series of debt securities being offered, as well as the complete indentures that contain the terms of the debt securities. A form of indenture has been filed as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

Warrants. We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities. In this prospectus, we have summarized certain general features of the warrants. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the particular series of warrants being offered, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants. Forms of the warrant agreements and forms of warrant certificates containing the terms of the warrants being offered have been filed as exhibits to the registration statement of which this prospectus is a part, and supplemental warrant agreements and forms of warrant certificates will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

We will evidence each series of warrants by warrant certificates that we will issue. Warrants may be issued under an applicable warrant agreement that we enter into with a warrant agent. We will indicate the name and address of the warrant agent, if applicable, in the prospectus supplement relating to the particular series of warrants being offered.

Use of Proceeds

Except as described in the applicable prospectus supplement or in any free writing prospectuses we have authorized for use in connection with a specific offering, we currently intend to use the net proceeds from the sale of the securities offered hereby for general corporate purposes, which may include clinical trial and other research and development expenses, capital expenditures, working capital and general and administrative expenses. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus. We will set forth in the applicable prospectus supplement or free writing prospectus our intended use for the net proceeds received from the sale of any securities sold pursuant to the prospectus supplement or free writing prospectus. Pending these uses, we intend to invest the net proceeds primarily in money market mutual funds, obligations of the U.S. government and its agencies, money market instruments including commercial paper and negotiable certificates of deposit and corporate bonds. See “Use of Proceeds” in this prospectus for additional information.

Risk Factor Summary

Below is a summary of the principal factors that make an investment in our securities speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks and uncertainties summarized in this risk factor summary, and other risks and uncertainties that we face, are set forth below under the heading “Risk Factors” contained in the applicable prospectus supplement and in any free writing prospectuses we have authorized for use in connection with a specific offering, and under similar headings in the documents that are incorporated by reference into this prospectus.

- We are an early commercial-stage company and have a limited commercial history, which may make it difficult to evaluate our current business and predict our future performance;
- We have incurred recurring net losses since we were formed and expect to incur losses in the future. We cannot be certain that we will achieve or sustain profitability;
- Our quarterly and annual operating results and cash flows have fluctuated in the past and might continue to fluctuate, which makes our future operating results difficult to predict and could cause the market price of our securities to decline substantially;
- Our future capital needs are uncertain and we may require additional funding in the future to advance the commercialization of our Saphyr system, Ionic Purification system, VIA software, and our other products, technologies and services, as well as continue our research and development efforts. If we fail to obtain additional funding, we will be forced to delay, reduce or eliminate our commercialization and development efforts;
- Unfavorable geopolitical and macroeconomic developments could adversely affect our business, financial condition or results of operations;
- The COVID-19 pandemic has materially affected and could continue to materially affect our operations globally, including at our headquarters in San Diego, California, as well as the business or operations of our research partners, customers and other third parties with whom we conduct business;
- Acquisitions, joint ventures and other strategic transactions could disrupt or otherwise harm our business and may cause dilution to our stockholders;
- If our products or technologies fail to achieve and sustain sufficient market acceptance, our revenue will be adversely affected;
- In the near term, sales of our Saphyr system, Ionic Purification system, VIA software, consumables and genome analysis services will depend on levels of research and development spending by clinical research laboratories, academic and governmental research institutions and biopharmaceutical companies, a reduction in which could limit demand for our technologies and products and adversely affect our business and operating results;
- If we do not successfully manage the development and launch of new products and technologies, our financial results could be adversely affected;
- Our future success is dependent upon our ability to further penetrate our existing customer base, attract new customers and retain the customers of our acquired businesses;

- The size of the markets for our products and technologies may be smaller than we estimate, and new markets may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our products and technologies.
- We are currently limited to “research use only,” or RUO, with respect to many of the materials and components used in our consumable products including our assays;
- If the FDA determines that our RUO products are medical devices or if we seek to market our RUO products for clinical diagnostic or health screening use, we will be required to obtain regulatory clearance(s) or approval(s), and may be required to cease or limit sales of our then marketed products, which could materially and adversely affect our business, financial condition and results of operations. Any such regulatory process would be expensive, time-consuming and uncertain both in timing and in outcome;
- If we are unable to protect our intellectual property, it may reduce our ability to maintain any technological or competitive advantage over our competitors and potential competitors, and our business may be harmed; and
- 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.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should carefully consider the risks and uncertainties described under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and discussed under the heading “Risk Factors” contained 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, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus, the documents incorporated by reference and any free writing prospectus that we may authorize for use in connection with a specific offering. The risks described in these documents are not the only ones we face, but those that we consider to be material factors that make an investment in our common stock speculative or risky. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our securities to decline, resulting in a loss of all or part of your investment. Please also carefully read the section below entitled “Special Note Regarding Forward-Looking Statements.”

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and any accompanying prospectus supplement, as well as the documents incorporated by reference in this prospectus or any accompanying prospectus supplement, 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. These statements relate to future events or to our future operating or financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, these forward-looking statements may include, but are not limited to, statements about:

- the size and growth potential of the markets for our products, and our ability to serve those markets;
- the rate and degree of market acceptance of our products;
- our ability to manage the growth of our business and integrate acquired businesses;
- our ability to expand our commercial organization to address effectively existing and new markets that we intend to target;
- the impact from future regulatory, judicial, and legislative changes or developments in the U.S. and foreign countries;
- our ability to successfully execute our strategy and meet anticipated goals and milestones;
- our ability to compete effectively in a competitive industry;
- the introduction of competitive technologies or improvements in existing technologies and the success of any such technologies;
- the performance of our third-party contract sales organizations, suppliers and manufacturers;
- our ability to attract and retain key scientific or management personnel;
- the accuracy of our estimates regarding expenses, future revenues, reimbursement rates, capital requirements and needs for additional financing;
- the impact of geopolitical and macroeconomic developments, such as the ongoing conflict between Ukraine and Russia, related sanctions and the COVID-19 pandemic on our business and operations, as well as the business or operations of our suppliers, customers, manufacturers, research partners and other third parties with whom we conduct business and our expectations with respect to the duration of such impacts and the resulting effects on our business;
- our ability to realize the anticipated benefits and synergies of our recent and any future acquisitions or other strategic transactions;
- our intended use of the net proceeds from offerings of our securities under this prospectus;
- our ability to continue as a going concern within 12 months from the date of our Annual Report on Form 10-K for the year ended December 31, 2022 and our ability to obtain funding for our operations; and
- our ability to attract collaborators and strategic partnerships.

In some cases, you can identify forward-looking statements by terms such as “anticipates,” “believes,” “could,” “estimates,” “expects,” “may,” “plans,” “potential,” “predicts,” “projects,” “should,” “would,” “will” and similar expressions intended to identify forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We discuss in greater detail, and incorporate by reference into the registration statement of which this prospectus is a part in their entirety, many of these risks and uncertainties under the heading “Risk Factors” contained in the applicable prospectus supplement, in any free writing prospectus we may authorize for use in connection with a specific offering, 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. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement. Unless required by law, we undertake no obligation to update or

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revise any forward-looking statements to reflect new information or future events or developments. Thus, you should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. You should read this prospectus, the applicable prospectus supplement, together with the documents we have filed with the SEC that are incorporated by reference and any free writing prospectus we have authorized for use in connection with a specific offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Except as described in any prospectus supplement or any related free writing prospectus that we may authorize to be provided to you, we currently intend to use the net proceeds from the sale of the securities offered hereby for general corporate purposes, which may include clinical trial and other research and development expenses, capital expenditures, working capital and general and administrative expenses. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although we have no current plans, commitments or agreements with respect to any acquisitions as of the date of this prospectus. We will set forth in the applicable prospectus supplement or free writing prospectus our intended use for the net proceeds received from the sale of any securities sold pursuant to the prospectus supplement or free writing prospectus. Pending these uses, we intend to invest the net proceeds primarily in money market mutual funds, obligations of the U.S. government and its agencies, money market instruments including commercial paper and negotiable certificates of deposit and corporate bonds.

DESCRIPTION OF CAPITAL STOCK

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

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

Common Stock

Voting Rights

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

Economic Rights

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

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

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

No Preemptive or Similar Rights

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

Preferred Stock

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

Anti-Takeover Provisions

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

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

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

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

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

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

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

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

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

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

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

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

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

Transfer Agent and Registrar

Our transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent for any series of preferred stock that we may offer under this prospectus will be named and described in the prospectus supplement related to that series.

Listing on the Nasdaq Capital Market

Our common stock is listed on the Nasdaq Capital Market under the symbol "BNGO." The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on the Nasdaq Capital Market or any securities market or other exchange of the preferred stock covered by such prospectus supplement.

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indenture, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the debt securities under the indenture that we will enter into with the trustee named in the indenture. The indenture will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We have filed the form of indenture as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The following summary of material provisions of the debt securities and the indenture is subject to, and qualified in its entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete indenture that contains the terms of the debt securities.

General

The indenture does not limit the amount of debt securities that we may issue. It provides that we may issue debt securities up to the principal amount that we may authorize and may be in any currency or currency unit that we may designate. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indenture, the terms of the indenture do not contain any covenants or other provisions designed to give holders of any debt securities protection against changes in our operations, financial condition or transactions involving us.

We may issue the debt securities issued under the indenture as “discount securities,” which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may be issued with “original issue discount,” or OID, for U.S. federal income tax purposes because of interest payment and other characteristics or terms of the debt securities. Material U.S. federal income tax considerations applicable to debt securities issued with OID will be described in more detail in any applicable prospectus supplement.

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

- the title of the series of debt securities;
- any limit upon the aggregate principal amount that may be issued;
- the maturity date or dates;
- the form of the debt securities of the series;
- the applicability of any guarantees;
- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- whether the debt securities rank as senior debt, senior subordinated debt, subordinated debt or any combination thereof, and the terms of any subordination;
- if the price (expressed as a percentage of the aggregate principal amount thereof) at which such debt securities will be issued is a price other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof, or if applicable, the portion of the principal amount of such debt securities that is convertible into another security or the method by which any such portion shall be determined;

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- the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;
- the date or dates, if any, on which, and the price or prices at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;
- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;
- any and all terms, if applicable, relating to any auction or remarketing of the debt securities of that series and any security for our obligations with respect to such debt securities and any other terms which may be advisable in connection with the marketing of debt securities of that series;
- whether the debt securities of the series shall be issued in whole or in part in the form of a global security or securities; the terms and conditions, if any, upon which such global security or securities may be exchanged in whole or in part for other individual securities; and the depository for such global security or securities;
- if applicable, the provisions relating to conversion or exchange of any debt securities of the series and the terms and conditions upon which such debt securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at our option or the holders' option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange;
- if other than the full principal amount thereof, the portion of the principal amount of debt securities of the series which shall be payable upon declaration of acceleration of the maturity thereof;
- additions to or changes in the covenants applicable to the particular debt securities being issued, including, among others, the consolidation, merger or sale covenant;
- additions to or changes in the events of default with respect to the securities and any change in the right of the trustee or the holders to declare the principal, premium, if any, and interest, if any, with respect to such securities to be due and payable;
- additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;
- additions to or changes in the provisions relating to satisfaction and discharge of the indenture;
- additions to or changes in the provisions relating to the modification of the indenture both with and without the consent of holders of debt securities issued under the indenture;
- the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;
- whether interest will be payable in cash or additional debt securities at our or the holders' option and the terms and conditions upon which the election may be made;
- the terms and conditions, if any, upon which we will pay amounts in addition to the stated interest, premium, if any and principal amounts of the debt securities of the series to any holder that is not a "United States person" for federal tax purposes;
- any restrictions on transfer, sale or assignment of the debt securities of the series; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, any other additions or changes in the provisions of the indenture, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock or our other securities. We will include provisions as to settlement upon conversion or exchange and whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indenture will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of our assets as an entirety or substantially as an entirety. However, any successor to or acquirer of such assets (other than a subsidiary of ours) must assume all of our obligations under the indenture or the debt securities, as appropriate.

Events of Default under the Indenture

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indenture with respect to any series of debt securities that we may issue:

- if we fail to pay any installment of interest on any series of debt securities, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by us in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of interest for this purpose;
- if we fail to pay the principal of, or premium, if any, on any series of debt securities as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to such series; provided, however, that a valid extension of the maturity of such debt securities in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of principal or premium, if any;
- if we fail to observe or perform any other covenant or agreement contained in the debt securities or the indenture, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive written notice of such failure, requiring the same to be remedied and stating that such is a notice of default thereunder, from the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

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Subject to the terms of the indenture, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

- the direction so given by the holder is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indenture or to appoint a receiver or trustee, or to seek other remedies only if:

- the holder has given written notice to the trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request;
- such holders have offered to the trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred by the trustee in compliance with the request; and
- the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indenture.

Modification of Indenture; Waiver

We and the trustee may change an indenture without the consent of any holders with respect to specific matters:

- to cure any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series;
- to comply with the provisions described above under “Description of Debt Securities—Consolidation, Merger or Sale;”
- to provide for uncertificated debt securities in addition to or in place of certificated debt securities;
- to add to our covenants, restrictions, conditions or provisions such new covenants, restrictions, conditions or provisions for the benefit of the holders of all or any series of debt securities, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred upon us in the indenture;
- to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;
- to make any change that does not adversely affect the interests of any holder of debt securities of any series in any material respect;
- to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided above under “Description of Debt Securities—General” to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;
- to evidence and provide for the acceptance of appointment under any indenture by a successor trustee; or
- to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act.

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In addition, under the indenture, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

- extending the fixed maturity of any debt securities of any series;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any series of any debt securities; or
- reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

- provide for payment;
- register the transfer or exchange of debt securities of the series;
- replace stolen, lost or mutilated debt securities of the series;
- pay principal of and premium and interest on any debt securities of the series;
- maintain paying agencies;
- hold monies for payment in trust;
- recover excess money held by the trustee;
- compensate and indemnify the trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we provide otherwise in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indenture provides that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, or DTC, or another depository named by us and identified in the applicable prospectus supplement with respect to that series. To the extent the debt securities of a series are issued in global form and as book-entry, a description of terms relating to any book-entry securities will be set forth in the applicable prospectus supplement.

At the option of the holder, subject to the terms of the indenture and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indenture and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional

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transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indenture at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The indenture and the debt securities will be governed by and construed in accordance with the internal laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses that we may authorize to be distributed to you, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may consist of warrants to purchase common stock, preferred stock or debt securities and may be issued in one or more series. Warrants may be issued independently or together with common stock, preferred stock or debt securities offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus. The terms of any warrants offered under a prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We have filed forms of the warrant agreements and forms of warrant certificates containing the terms of the warrants being offered as exhibits to the registration statement of which this prospectus is a part. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement, if any, including a form of warrant certificate, that describes the terms of the particular series of warrants we are offering. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the particular series of warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms relating to a series of warrants being offered, including:

- the title of such securities;
- the offering price or prices and aggregate number of warrants offered;
- the currency or currencies for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- if applicable, the minimum or maximum amount of such warrants which may be exercised at any one time;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at which, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which, and the currency in which, these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
- the terms of any rights to force the exercise of the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreements and warrants may be modified;

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- a discussion of any material or special U.S. federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including:

- in the case of warrants to purchase debt securities, the right to receive payments of principal of, or premium, if any, or interest on, the debt securities purchasable upon exercise or to enforce covenants in the applicable indenture; or
- in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent in connection with the exercise of the warrant.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

Governing Law

Unless we provide otherwise in the applicable prospectus supplement, the warrants and warrant agreements, and any claim, controversy or dispute arising under or related to the warrants or warrant agreements, will be governed by and construed in accordance with the laws of the State of New York.

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

LEGAL OWNERSHIP OF SECURITIES

We can issue securities in registered form or in the form of one or more global securities. We describe global securities in greater detail below. We refer to those persons who have securities registered in their own names on the books that we or any applicable trustee or depository maintain for this purpose as the “holders” of those securities. These persons are the legal holders of the securities. We refer to those persons who, indirectly through others, own beneficial interests in securities that are not registered in their own names, as “indirect holders” of those securities. As we discuss below, indirect holders are not legal holders, and investors in securities issued in book-entry form or in street name will be indirect holders.

Book-Entry Holders

We may issue securities in book-entry form only, as we will specify in the applicable prospectus supplement. This means securities may be represented by one or more global securities registered in the name of a financial institution that holds them as depository on behalf of other financial institutions that participate in the depository’s book-entry system. These participating institutions, which are referred to as participants, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Only the person in whose name a security is registered is recognized as the holder of that security. Global securities will be registered in the name of the depository or its participants. Consequently, for global securities, we will recognize only the depository as the holder of the securities, and we will make all payments on the securities to the depository. The depository passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depository and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors in a global security will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depository’s book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect holders, and not legal holders, of the securities.

Street Name Holders

A global security may be terminated in certain situations as described under “—Special Situations When a Global Security Will Be Terminated,” or issue securities that are not issued in global form. In these cases, investors may choose to hold their securities in their own names or in “street name.” Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we or any applicable trustee or depository will recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we or any such trustee or depository will make all payments on those securities to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect holders, not holders, of those securities.

Legal Holders

Our obligations, as well as the obligations of any applicable trustee or third party employed by us or a trustee, run only to the legal holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect holder of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the legal holder, we have no further responsibility for the payment or notice even if that legal holder is required, under agreements with its participants or customers or by law, to pass it along to the indirect holders but does not do so. Similarly, we may want to obtain the approval of the holders to amend an indenture, to relieve us of the consequences of a default or of our obligation to comply with a particular provision of an indenture, or for other purposes. In such an event, we would seek approval only from the legal holders, and not the indirect holders, of the securities. Whether and how the legal holders contact the indirect holders is up to the legal holders.

Special Considerations for Indirect Holders

If you hold securities through a bank, broker or other financial institution, either in book-entry form because the securities are represented by one or more global securities or in street name, you should check with your own institution to find out:

- how it handles securities payments and notices;
- whether it imposes fees or charges;
- how it would handle a request for the holders' consent, if ever required;
- whether and how you can instruct it to send you securities registered in your own name so you can be a holder, if that is permitted in the future;
- how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and
- if the securities are in book-entry form, how the depositary's rules and procedures will affect these matters.

Global Securities

A global security is a security that represents one or any other number of individual securities held by a depositary. Generally, all securities represented by the same global securities will have the same terms.

Each security issued in book-entry form will be represented by a global security that we issue to, deposit with and register in the name of a financial institution or its nominee that we select. The financial institution that we select for this purpose is called the depositary. Unless we specify otherwise in the applicable prospectus supplement, DTC will be the depositary for all securities issued in book-entry form.

A global security may not be transferred to or registered in the name of anyone other than the depositary, its nominee or a successor depositary, unless special termination situations arise. We describe those situations below under "—Special Situations When a Global Security Will Be Terminated." As a result of these arrangements, the depositary, or its nominee, will be the sole registered owner and legal holder of all securities represented by a global security, and investors will be permitted to own only beneficial interests in a global security. Beneficial interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depositary or with another institution that does. Thus, an investor whose security is represented by a global security will not be a legal holder of the security, but only an indirect holder of a beneficial interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued as a global security, then the security will be represented by a global security at all times unless and until the global security is terminated. If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations for Global Securities

As an indirect holder, an investor's rights relating to a global security will be governed by the account rules of the investor's financial institution and of the depositary, as well as general laws relating to securities transfers. We do not recognize an indirect holder as a holder of securities and instead deal only with the depositary that holds the global security.

If securities are issued only as global securities, an investor should be aware of the following:

- an investor cannot cause the securities to be registered in his or her name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations we describe below;
- an investor will be an indirect holder and must look to his or her own bank or broker for payments on the securities and protection of his or her legal rights relating to the securities, as we describe above;
- an investor may not be able to sell interests in the securities to some insurance companies and to other institutions that are required by law to own their securities in non-book-entry form;
- an investor may not be able to pledge his or her interest in the global security in circumstances where certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;

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- the depositary's policies, which may change from time to time, will govern payments, transfers, exchanges and other matters relating to an investor's interest in the global security;
- we and any applicable trustee have no responsibility for any aspect of the depositary's actions or for its records of ownership interests in the global security, nor will we or any applicable trustee supervise the depositary in any way;
- the depositary may, and we understand that DTC will, require that those who purchase and sell interests in the global security within its book-entry system use immediately available funds, and your broker or bank may require you to do so as well; and
- financial institutions that participate in the depositary's book-entry system, and through which an investor holds its interest in the global security, may also have their own policies affecting payments, notices and other matters relating to the securities.

There may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the actions of any of those intermediaries.

Special Situations When a Global Security Will Be Terminated

In a few special situations described below, a global security will terminate and interests in it will be exchanged for physical certificates representing those interests. After that exchange, the choice of whether to hold securities directly or in street name will be up to the investor. Investors must consult their own banks or brokers to find out how to have their interests in securities transferred to their own names, so that they will be direct holders. We have described the rights of holders and street name investors above.

Unless we provide otherwise in the applicable prospectus supplement, the global security will terminate when the following special situations occur:

- if the depositary notifies us that it is unwilling, unable or no longer qualified to continue as depositary for that global security and we do not appoint another institution to act as depositary within 90 days;
- if we notify any applicable trustee that we wish to terminate that global security; or
- if an event of default has occurred with regard to securities represented by that global security and has not been cured or waived.

The applicable prospectus supplement may also list additional situations for terminating a global security that would apply only to the particular series of securities covered by the applicable prospectus supplement. When a global security terminates, the depositary, and neither we nor any applicable trustee, is responsible for deciding the names of the institutions that will be the initial direct holders.

PLAN OF DISTRIBUTION

We may sell the securities covered hereby from time to time pursuant to underwritten public offerings, direct sales to the public, negotiated transactions, block trades or a combination of these methods. A distribution of these securities offered by this prospectus may also be effected through the issuance of derivative securities, including without limitation and warrants. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute securities from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

We may also sell equity securities covered by this registration statement in an “at the market offering” as defined in Rule 415 under the Securities Act. Such offering may be made into an existing trading market for such securities in transactions at other than a fixed price, either:

- on or through the facilities of the Nasdaq Capital Market or any other securities exchange or quotation or trading service on which such securities may be listed, quoted or traded at the time of sale; and/or
- to or through a market maker other than on the Nasdaq Capital Market or such other securities exchanges or quotation or trading services.

Such “at-the-market offerings,” if any, may be conducted by underwriters acting as principal or agent.

A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable:

- the name or names of any underwriters, dealers or agents, if any;
- the purchase price of the securities and the proceeds we will receive from the sale;
- any options pursuant to which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents’ or underwriters’ compensation;
- any public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

Only underwriters named in the prospectus supplement will be underwriters of the securities offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement, other than securities covered by any option to purchase additional securities. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities, and we will describe any commissions and other compensation we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

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We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

All securities we may offer, other than common stock, will be new issues of securities with no established trading market. Any agents or underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities. There is currently no market for any of the offered securities, other than our common stock which is listed on the Nasdaq Capital Market. We have no current plans for listing of the debt securities, preferred stock or warrants on any securities exchange or quotation system; any such listing with respect to any particular debt securities, preferred stock or warrants will be described in the applicable prospectus supplement or other offering materials, as the case may be.

Any underwriter may engage in over-allotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Rule 103 of Regulation M under the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. These transactions may be effected on any exchange or over-the-counter market or otherwise.

Any agents and underwriters who are qualified market makers on the Nasdaq Capital Market may engage in passive market making transactions in the securities on the Nasdaq Capital Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the securities offered by this prospectus, and any prospectus supplement thereto, will be passed upon by Cooley LLP. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements as of December 31, 2022 and 2021 and for the years then ended incorporated in this prospectus and in the registration statement of which this prospectus forms a part have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting. The report on the consolidated financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC under the Securities Act and does not contain all the information set forth or incorporated by reference in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document.

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>. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and 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 can also be accessed free of charge on the Investor section of our website. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

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

The following documents are incorporated by reference into this document:

- our Annual Report on Form 10-K for the year ended December 31, 2022, filed with the SEC on [March 9, 2023](#);
- our Current Report on Form 8-K (other than information furnished rather than filed) filed with the SEC on [February 3, 2023](#) to the extent the information in such reports is filed and not furnished; and
- the description of our common stock in our registration statement on Form 8-A, which was filed with the SEC on [August 17, 2018](#), including all amendments and reports filed for the purpose of updating such description, including Exhibit 4.10 Annual Report on Form 10-K for the year ended December 31, 2022.

We also incorporate by reference into this prospectus all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to effectiveness of the registration statement, and (ii) after the effectiveness of the registration statement but prior to the termination of all offerings of securities covered by this prospectus. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as proxy statements. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.

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

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the registrant pursuant to the foregoing provisions, the registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.



22,900,000 Shares of Common Stock

Pre-Funded Warrants to Purchase up to 16,782,540 Shares of Common Stock

Purchase Warrants to Purchase up to 39,682,540 Shares of Common Stock

**Up to 54,465,080 Shares of Common Stock Issuable Upon Exercise of the Pre-Funded Warrants
and the Purchase Warrants**

PROSPECTUS SUPPLEMENT

H.C. Wainwright & Co.

The date of this prospectus supplement is January 3, 2025
