

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

**POST-EFFECTIVE AMENDMENT NO. 1 TO  
FORM S-1  
REGISTRATION STATEMENT**

*UNDER  
THE SECURITIES ACT OF 1933*

**BIONANO GENOMICS, INC.**  
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	3826 (Primary Standard Industrial Classification Code Number)	26-1756290 (I.R.S. Employer Identification Number)
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9540 Towne Centre Drive, Suite 100  
San Diego, CA 92121  
(858) 888-7600  
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

R. Erik Holmlin, Ph.D.  
President and Chief Executive Officer  
Bionano Genomics, Inc.  
9540 Towne Centre Drive, Suite 100  
San Diego, CA 92121  
(858) 888-7600  
(Name, address, including zip code, and telephone number, including area code, of agent for service)

*Copies to:*

Thomas A. Coll, Esq.  
James C. Pennington, Esq.  
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4401 Eastgate Mall  
San Diego, California 92121  
(858) 550-6000

R. Erik Holmlin, Ph.D.  
President and Chief Executive Officer  
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Chrysler Center  
666 Third Avenue  
New York, NY 10017  
(212) 935-3000

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

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

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

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

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering.  333-233828

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

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

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

**This post-effective amendment shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(d) under the Securities Act of 1933, as amended.**

### Explanatory Note

This Post-Effective Amendment No. 1 (this "Amendment") relates to the Registrant's Registration Statement on Form S-1 (File No. 333-233828), as amended, declared effective on October 21, 2019 by the Securities and Exchange Commission. The Registrant is filing this Amendment for the sole purpose of replacing Exhibit 5.1 to the Registration Statement. This Amendment does not modify any provision of Part I or Part II of the Registration Statement other than Item 16(a) and the Exhibit Index of Part II as set forth below.

### PART II INFORMATION NOT REQUIRED IN PROSPECTUS

#### Item 16. Exhibits and Financial Statement Schedules.

##### (a) Exhibits.

<u>Exhibit Number</u>	<u>Description of Document</u>
<a href="#">5.1</a>	Opinion of Cooley LLP.
<a href="#">23.2</a>	Consent of Cooley LLP (included in Exhibit 5.1).
<a href="#">24.1</a>	Power of Attorney (included on the signature page of the Registration Statement on Form S-1, as amended (File No. 333-233828), filed with the Securities and Exchange Commission on September 18, 2019 and incorporated herein by reference).

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**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Post-Effective Amendment No. 1 to Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 21<sup>st</sup> day of October, 2019.

**BIONANO GENOMICS, INC.**

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

R. Erik Holmlin, Ph.D.

President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment No. 1 to Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ R. Erik Holmlin, Ph.D.</u> R. Erik Holmlin, Ph.D.	Chief Executive Officer and Director <i>(Principal Executive Officer)</i>	October 21, 2019
<u>/s/ Mike Ward</u> Mike Ward	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	October 21, 2019
<u>/s/ David L. Barker, Ph.D.*</u> David L. Barker, Ph.D.	Director	October 21, 2019
<u>/s/ Albert A. Luderer, Ph.D.*</u> Albert A. Luderer, Ph.D.	Director	October 21, 2019
<u>/s/ Junfeng Wang*</u> Junfeng Wang	Director	October 21, 2019
<u>/s/ Christopher Twomey*</u> Christopher Twomey	Director	October 21, 2019
<u>/s/ Kristina Vuori, M.D., Ph.D.*</u> Kristiina Vuori, M.D., Ph.D.	Director	October 21, 2019
<u>/s/ Quan Zhou*</u> Quan Zhou	Director	October 21, 2019

\* Pursuant to Power of Attorney

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

R. Erik Holmlin, Ph.D.

*Attorney-in-Fact*

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

October 21, 2019

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

Ladies and Gentlemen:

We have acted as counsel to Bionano Genomics, Inc., a Delaware corporation (the "**Company**"), in connection with the filing by the Company of a Registration Statement (No. 333-233828) on Form S-1 with the Securities and Exchange Commission, as well as a registration statement related thereto and to be filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "**Act**"), together covering an underwritten public offering of (i) up to an aggregate of 20,937,558 shares (the "**Shares**") of Common Stock of the Company, par value \$0.0001 per share (the "**Common Stock**"), or pre-funded warrants to purchase shares of Common Stock (the "**Pre-Funded Warrants**"), (ii) warrants to purchase up to 20,937,558 shares of Common Stock (the "**Common Warrants**" and, together with the Pre-Funded Warrants, the "**Warrants**"), and (iii) up to 20,937,558 shares of Common Stock issuable upon exercise of the Warrants (the "**Warrant Shares**"; together with the Shares and the Warrants, the "**Securities**"). Such Registration Statement on Form S-1 (No. 333-233828), as amended, which was declared effective on October 21, 2019, including the prospectus which forms a part of such Registration Statement (the "**Prospectus**"), and including the registration statement related thereto and to be filed pursuant to Rule 462(b) under the Act, is herein referred to as the "**Registration Statement**." The Securities are to be sold by the Company as described in the Registration Statement and the Prospectus.

In connection with this opinion, we have examined and relied upon the Registration Statement, the Prospectus, the form of Common Warrant, the form of Pre-Funded Warrant, the Company's amended and restated certificate of incorporation and amended and restated bylaws, each as currently in effect, and originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness and authenticity of all documents submitted to us as originals, and the conformity to originals of all documents submitted to us as copies; the accuracy, completeness and authenticity of certificates of public officials; and the due execution and delivery of all documents by all persons other than the Company where due execution and delivery are a prerequisite to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently sought to verify such matters.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware and, as to the Warrants constituting valid and binding obligations of the Company, with respect to the laws of the State of New York. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

With regard to our opinion concerning the Warrants constituting valid and binding obligations of the Company:

- (i) Our opinion is subject to, and may be limited by, (a) applicable bankruptcy, reorganization, insolvency, moratorium, fraudulent conveyance, debtor and creditor, and similar laws which relate to or affect creditors' rights generally, and (b) general principles of equity (including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing) regardless of whether considered in a proceeding in equity or at law.

- (ii) Our opinion is subject to the qualification that the availability of specific performance, an injunction or other equitable remedies is subject to the discretion of the court before which the request is brought.
- (iii) We express no opinion as to any provision of the Warrants that: (a) provides for liquidated damages, buy-in damages, monetary penalties, prepayment or make-whole payments or other economic remedies to the extent such provisions may constitute unlawful penalties, (b) relates to advance waivers of claims, defenses, rights granted by law, or notice, opportunity for hearing, evidentiary requirements, statutes of limitations, trial by jury, or procedural rights, (c) restricts non-written modifications and waivers, (d) provides for the payment of legal and other professional fees where such payment is contrary to law or public policy, (e) relates to exclusivity, election or accumulation of rights or remedies, (f) authorizes or validates conclusive or discretionary determinations, or (g) provides that provisions of the Warrants are severable to the extent an essential part of the agreed exchange is determined to be invalid and unenforceable.
- (iv) We express no opinion as to whether a state court outside of the State of New York or a federal court of the United States would give effect to the choice of New York law or jurisdiction provided for in the Warrants.

With respect to our opinion regarding the Warrant Shares, we express no opinion to the extent that, notwithstanding the Company's current reservation of the maximum number of Warrant Shares as of the date hereof, future issuances of securities of the Company, including the Warrant Shares, and/or antidilution adjustments to outstanding securities of the Company, including the Warrants, may cause the Warrants to be exercisable for more shares of Common Stock than the number that then remain authorized but unissued. Further, we have assumed the Exercise Price (as defined in the Warrants) will not be adjusted to an amount below the par value per share of the Warrant Shares.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that (i) the Shares, when sold and issued in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and nonassessable, (ii) provided that the Warrants have been duly executed and delivered by the Company to the purchasers thereof against payment therefor as provided in the Registration Statement and the Prospectus, the Warrants will be valid and binding obligations of the Company and (iii) the Warrant Shares, when issued and paid for in accordance with the terms of the Warrants, will be validly issued, fully paid and non-assessable.

We consent to the reference to our firm under the caption "Legal Matters" in the Prospectus and to the filing of this opinion as an exhibit to the Registration Statement.

Sincerely,

**Cooley LLP**

By: /s/ Thomas A. Coll

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Thomas A. Coll