
**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)

**9640 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.
9640 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)

**Thomas A. Coll, Esq.
Kenneth J. Rollins, Esq.
James C. Pennington, Esq.
Cooley LLP
4401 Eastgate Mall
San Diego, California 92121
(858) 550-6000**

Copies to:
**R. Erik Holmlin, Ph.D.
President and Chief Executive Officer
Bionano Genomics, Inc.
9640 Towne Centre Drive, Suite 100
San Diego, California 92121
(858) 888-7600**

**Mitchell Nussbaum, Esq.
Angela Dowd, Esq.
Loeb & Loeb LLP
345 Park Ave.
New York, NY 10154
(212) 407-4000**

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. 333-225970

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

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

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

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. 333-225970), as amended, declared effective on August 20, 2018 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>
5.1	Opinion of Cooley LLP.
23.2	Consent of Cooley LLP. Reference is made to Exhibit 5.1

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 21st day of August, 2018.

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>	August 21, 2018
<u>/s/ Mike Ward</u> Mike Ward	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	August 21, 2018
<u>/s/ David L. Barker, Ph.D.*</u> David L. Barker, Ph.D.	Director	August 21, 2018
<u>/s/ Darren Cai, Ph.D.*</u> Darren Cai, Ph.D.	Director	August 21, 2018
<u>/s/ Albert A. Luderer, Ph.D.*</u> Albert A. Luderer, Ph.D.	Director	August 21, 2018
<u>/s/ Junfeng Wang*</u> Junfeng Wang	Director	August 21, 2018
<u>/s/ Christopher Twomey*</u> Christopher Twomey	Director	August 21, 2018
<u>/s/ Quan Zhou*</u> Quan Zhou	Director	August 21, 2018

* Pursuant to Power of Attorney

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

R. Erik Holmlin, Ph.D.

Attorney-in-Fact

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

August 21, 2018

Bionano Genomics, Inc.
9640 Towne Centre Drive, Suite 100
San Diego, CA 92121

Ladies and Gentlemen:

You have requested our opinion, as counsel to Bionano Genomics, Inc., a Delaware corporation (the “*Company*”), in connection with the filing by the Company of a Registration Statement (No. 333-225970) 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 3,864,000 units (the “*Units*”) of the Company, including up to 504,000 Units that may be sold pursuant to the exercise of an option to purchase additional Units, with each Unit consisting of one share of common stock, par value \$0.0001 per share (the “*Common Stock*”), of the Company (the “*Shares*”), and a warrant to purchase one share of Common Stock (the “*Warrants*”), and (ii) up to 3,864,000 shares of Common Stock issuable upon exercise of the Warrants (the “*Warrant Shares*”). All of the Units are to be sold by the Company as described in the Registration Statement and the Prospectus. The Warrants are to be issued pursuant to a Warrant Agreement between the Company and American Stock Trust & Transfer Company, LLC, as warrant agent (the “*Warrant Agreement*”). Such Registration Statement on Form S-1 (No. 333-225970), as amended, 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*.”

In connection with this opinion, we have examined and relied upon (a) the Registration Statement and the Prospectus, (b) the Company’s Eighth Amended and Restated Certificate of Incorporation and Bylaws, each as amended, as currently in effect, (c) the Company’s Amended and Restated Certificate of Incorporation, filed as Exhibit 3.2 to the Registration Statement, and the Company’s Amended and Restated Bylaws, filed as Exhibit 3.4 to the Registration Statement, each of which will be in effect immediately following the closing of the offering contemplated by the Registration Statement, and (d) the form of the Warrant Agreement filed as an exhibit to the Registration Statement, (e) the form of Unit Certificate filed as an exhibit to the Registration Statement and (f) 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 and the due execution and delivery of all documents (other than by 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 sought independently to verify such matters.

Our opinion is expressed only with respect to the law of the State of New York and the Delaware General Corporation Law. We express no opinion as to whether the laws of any particular jurisdiction are applicable to the subject matter hereof. We are not rendering any opinion as to compliance with any federal or state antifraud law, rule or regulation relating to securities, or to the sale or issuance thereof.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that: (i) the Units and the Warrants, when sold and issued against payment therefor as described in the Registration Statement and

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the Prospectus, will constitute valid and binding obligations of the Company, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally and to equitable principles of general applicability; (ii) the Shares, when sold and issued against payment therefor as described in the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable; and (iii) the Warrant Shares, when issued and sold by the Company in accordance with the Warrant Agreement, 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 included in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement.

Sincerely,

Cooley LLP

By: /s/ Thomas A. Coll
Thomas A. Coll

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