



James Pennington
+1 858 550 6029
jpennington@cooley.com

VIA EDGAR

August 16, 2018

United States Securities and Exchange Commission
Division of Corporation Finance
Mail Stop 3030
100 F Street, N.E.
Washington, D.C. 20549
Attn: Amanda Ravitz
Heather Percival

Re: Bionano Genomics, Inc.
Amendment No. 5 to Registration Statement on Form S-1
Filed August 15, 2018
CIK No. 0001411690

Dear Ms. Ravitz and Ms. Percival:

On behalf of Bionano Genomics, Inc. ("**Bionano**" or the "**Company**"), we are responding to the oral comments (the "**Comments**") received from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") on August 15, 2018, relating to the above referenced Amendment No. 5 to Registration Statement on Form S-1 (the "**Amendment No. 5**").

Set forth below are the Company's responses to the Comments. Page references in the text of this response letter correspond to the page numbers of the Amendment No. 5. Capitalized terms used in this letter but not otherwise defined herein shall have the meanings set forth in the Amendment No. 5.

Confidential Treatment Request

Due to the commercially sensitive nature of information contained herein, the Company hereby requests, pursuant to 17 C.F.R. § 200.83, that certain portions of this letter be maintained in confidence, not be made part of any public record and not be disclosed to any person as they contain confidential information. The Company has filed a separate copy of this letter, marked to show the portions redacted from the version filed via EDGAR and for which the Company is requesting confidential treatment. In accordance with 17 C.F.R. § 200.83(d)(1), if any person (including any governmental employee who is not an employee of the Commission) should request access to or an opportunity to inspect this letter, we request that we be immediately notified of any such request, be furnished with a copy of all written materials pertaining to such request (including, but not limited to, the request itself) and be given at least ten business days advance notice of any intended release so that the Company may, if deemed necessary or appropriate, pursue any remedies available to it. In such an event, we request that you telephone the undersigned rather than rely upon the U.S. mail for such notice. The address and telephone number for James Pennington, the responsible representative, is c/o Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121, telephone number (858) 550-6029.

[*] CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED AND FILED SEPARATELY WITH THE COMMISSION PURSUANT TO 17 CFR §200.83

Cooley LLP 4401 Eastgate Mall San Diego, CA 92121
t: (858) 550-6000 f: (858) 550-6420 cooley.com

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Staff Comments and Company Responses

Use of Proceeds, page 53; Capital Resources, page 70

1. Please explain the basis for the company's continued expectation that the net proceeds from the offering, together with cash generated from commercial sales and current cash and cash equivalents, will be sufficient to meet the company's anticipated operating cash requirements for at least the next 18 months, taking into account the significant decrease in the expected net proceeds from the offering relative to the prior amendment of the registration statement.

Response: The Company respectfully acknowledges the Staff's comment and advises the Staff that it expects that the net proceeds from the anticipated offering, together with cash generated from commercial sales and current cash on hand, will be sufficient to meet the Company's cash requirements for at least the next 18 months. The Company believes this is the case despite the decrease in expected net proceeds from the offering relative to the prior amendment of the registration statement filed on July 31, 2018 (the "**Prior Amendment**").

[***]

2. *Please explain the basis for the company's continued expectation regarding its business plan and the specific objectives it expects to pursue, taking into account the significant decrease in the expected net proceeds from the offering relative to the prior amendment of the registration statement.*

Response: The Company respectfully acknowledges the Staff's comment and advises the Staff that although the expected level of net proceeds from the offering has decreased, the Company's business plan has not changed. The specific objectives that the Company expects to pursue also have not changed as a result of the decrease in expected net proceeds from the offering. [***]

[***]

Part II, Item 17.

3. *Please revise the disclosure to reflect the Company's applicable obligations with respect to Item 512(a) of Regulation S-K, taking into account the warrants forming part of the units to be sold in the offering.*

Response: The Company respectfully acknowledges the Staff's comment and advises the Staff that the Company is aware of and will comply with its applicable obligations in connection with Item 512(a) of Regulation S-K, taking into account the warrants forming part of the units to be sold in the offering.

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Destruction of this Unredacted Letter Pursuant to Rule 418 Under the Securities Act of 1933, As Amended

We further request, pursuant to Rule 418 under the Securities Act of 1933, as amended, that this unredacted letter be destroyed promptly following the Staff's completion of its review of such information.

Please advise us if we can provide any further information or assistance to facilitate your review. Please direct any further comments or questions regarding the Amendment No. 5 or this response letter to me at (858) 550-6029.

Sincerely,

Cooley LLP

/s/ James Pennington

James Pennington

cc: R. Erik Holmlin, Ph.D., Bionano Genomics, Inc.

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