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VIA EDGAR

August 17, 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 follow-up 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**") and the response letter from the Company to the Commission, dated August 16, 2018 (the "**Response Letter**").

In response to the Comments, the Company has revised the Amendment No. 5 and is publicly filing via EDGAR an Amendment No. 6 to Registration Statement on Form S-1 (the "**Amendment No. 6**") with this response letter.

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. 6. Capitalized terms used in this letter but not otherwise defined herein shall have the meanings set forth in the Amendment No. 6.

#### **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**

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## **Staff Comments and Company Responses**

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

1. *Please confirm that the revenue and cash projections in the response letter dated August 16, 2018 account for the impact of the reduced amount of net proceeds, relative to the prior amendment to the registration statement, which will be available to spend on each of the purposes described in the prospectus section titled "Use of Proceeds." In addition, please disclose in the S-1 the basis for the company's disclosure that it believes it will have sufficient cash for at least the next 18 months.*

**Response:** The Company respectfully acknowledges the Staff's comment and hereby confirms that the revenue and cash projections in the response letter dated August 16, 2018 account for the impact of the reduced amount of net proceeds which will be available to spend on each of the purposes described in the Amendment No. 6, relative to the prior amendment to the registration statement. The Company also advises the Staff that it has revised pages 15 and 70 of the Amendment No. 6 to address the Staff's request regarding disclosing the basis for the Company's belief that it will have sufficient cash for at least the next 18 months.

Use of Proceeds, page 92

2. *While the company's strategies and objectives may not have changed in connection with the lower net proceeds relative to the prior amendment to the registration statement, to what extent does the company anticipate that its ability to accomplish its strategies and objectives will be impacted by the lower net proceeds?*

**Response:** The Company respectfully acknowledges the Staff's comment and reconfirms that the Company's strategies and objectives as disclosed in the Amendment No. 6 have not changed as a result of the lower net proceeds. [\*\*\*]

## **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.

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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. 6 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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