UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

April 16, 2021

Andrew Spaventa
Chief Executive Officer
Singular Genomics Systems, Inc.
10931 N. Torrey Pines Road
Suite #100
La Jolla, CA 92037

Re: Singular Genomics Systems, Inc.
Draft Registration Statement on Form S-1
Submitted March 22, 2021
CIK No. 0001850906

Dear Mr. Spaventa:

We have reviewed your draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Draft Registration Statement on Form S-1 submitted March 22, 2021

Prospectus Summary
Overview, page 1

1. Please revise your prospectus summary to include a balanced discussion of your company and products. For example:

   - revise to clarify that you have no experience manufacturing your products in commercial quantities, conducting sales and marketing activities at scale, or managing customer support at the commercial level;

- discuss whether any third parties tested or evaluated your products prior to the beta pilot program for the G4 Integrated Solution;
- revise to discuss whether users in the beta pilot program have achieved the performance metrics that are referenced throughout this section; and
- disclose that you do not currently intend to seek FDA clearance for the clinical diagnostic use of your products and that your products will be sold for research use only.

2. We note your disclosures here and throughout your document that your products are designed to "empower clinicians", have broad potential application across "clinical" markets, that limitations remain in incorporating current sequencing technologies and products into "routine clinical practice" and similar statements. However, your disclosure on pages 47, 101 and 109 indicates that your products are not designed as clinical diagnostic tests or as medical devices, that you do not intend to pursue clinical diagnostics applications and that your products are labeled for research use only.

   Accordingly, please revise throughout to remove your statements regarding the potential clinical use of your products and the limitations of current sequencing products in clinical practice or advise.

Applications for the G4 Integrated Solution, page 5

3. Please revise to provide the basis for your statement that HD-Seq enables higher accuracy than existing rare variant detection methods and describe the study in which you demonstrated 99.99% accuracy for 100 base reads with your current methodology.

Markets, page 9

4. Please disclose any material assumptions and limitations associated with your market estimates. Please also revise this section to reflect your disclosure elsewhere in the document that you intend to market your products for research use only.

Implications of Being an Emerging Growth Company, page 11

5. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

Risk Factors

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited, page 31

6. Please quantify your net operating loss carryforwards and research tax credits.

Special Note Regarding Forward-Looking Statements, page 61

7. We note the statement that you undertake no obligation to update forward-looking statements publicly for any reason following the date of the prospectus. Please revise to clarify that you will update this information to the extent required by law.

Market, Industry and Other Data, page 62

8. We note your statement that third party information regarding market and industry data has not been independently verified. We further note your statement that the content of the third-party sources, except to the extent set forth in this prospectus, does not constitute a portion of the prospectus. These statements may imply an inappropriate disclaimer of responsibility with respect to such information that appears in your prospectus. Please either delete these statements or specifically state that you are liable for the information related to the market and industry data and your internal company research that appears in the prospectus.

Business
Capabilities of the G4 Integrated Solution, page 92

9. Please revise your disclosure to describe how the capabilities referenced in this section (e.g. Q30 on greater than 70% of base calls, 4.0 minute cycle time, 150 million reads per flow cell) were assessed or observed.

10. We note your statements that you are "targeting" Q30 for greater than 80% of base calls for 150 base reads, 2.5 minute cycle times for each base sequenced (as compared to a current 4.0 minute cycle time) and 330 million reads per flow cell at commercial launch (as compared to demonstrated capability to produce 150 million reads per flow cell). Please revise to briefly discuss the anticipated developments that will permit you to meet these performance goals.

Applications for the G4 Integrated Solution, page 94

11. Please revise this section to describe the study or trial in which you generated the data on page 95. Please also describe the significance of the "Read 1" and "Read 2" lines in the chart.

Competitive Strengths, page 102

12. Please revise to provide the basis for your statement that the G4 Integrated Solution and planned PX Integrated Solution offer differentiated performance as measured by various KPIs. To the extent either product has yet to achieve differentiated performance in these indicators in comparative analyses, please revise your disclosure accordingly.

Intellectual Property, page 107

13. Please revise to describe the material terms of your license agreement with The Trustees

of Columbia University in the City of New York including:

- the date of the agreement and the identity of each of the parties to the agreement;
- each parties' rights and obligations under the agreement;
- quantify all payment made to date;
- disclose separately the aggregate amount of all potential development, regulatory and commercial milestone payments;
- disclose the amount of option fees for any additional patents or intellectual property;
- quantify the royalty rate, or a range no greater than 10 percentage points per tier;
- disclose when royalty provisions expire, if the expiration is based on a number of years following commercialization, disclose the number of years;
- disclose the expiration date; and
- describe any termination provisions.

Please also file the agreement as an exhibit to your registration statement.

14. Please revise to disclose for each material patent and patent application the specific product(s) to which such patents or patent applications relate and the type of patent protection. Please also disclose the jurisdictions of your issued patents and your European patent applications.

You may contact Ibolya Ignat at 202-551-3636 or Lynn Dicker at 202-551-3616 if you have questions regarding comments on the financial statements and related matters. Please contact Alan Campbell at 202-551-4224 or Jeffrey Gabor at 202-551-2544 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Ryan J. Gunderson, Esq.