



DIVISION OF
CORPORATION FINANCE

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

September 24, 2010

Clifford A. Reid, Ph.D.
President and Chief Executive Officer
Complete Genomics, Inc.
2071 Stierlin Court
Mountain View, CA 94043

**Re: Complete Genomics, Inc.
Registration Statement on Form S-1/A
Filed September 10, 2010
File No. 333-168439**

Dear Mr. Reid:

We have reviewed your 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 amending your registration statement and providing the requested information. 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 any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Prospectus Summary, page 1

1. We have reviewed your response to prior comment 9. We do not believe the provided articles present support for the following statements as the articles do not compare your technology to alternative sequencing technology:
 - “We believe that our solution will provide ...complete human genomic data and analysis at an unprecedented combination of quality, cost and scale...;”
 - “We believe that our complete human genome sequencing technology ...is superior to existing commercially available complete genome sequencing methods in terms of quality, cost and scale;” and
 - “We believe this unique combination of our proprietary DNB and cPAL technologies is superior in both quality and cost when compared to other commercially available technologies...”

Please further explain why you believe the provided articles support your statements, provide alternative support for your beliefs or revise the referenced statements.

We currently are, and could in the future be, subject to litigation..., page 27

2. Your disclosure on page 85 states that if an injunction is granted with respect to the Illumina and Solexa complaint, it could force you to stop or alter certain business activities. Please expand this discussion to identify the business activities you could be expected to stop or alter and explain the potential impact on your operations.

Use of Proceeds, page 35

3. We have reviewed your response to comment 23 and your revised disclosure. Please further expand your disclosure to disclose the amounts you expect to use to further develop your sequencing technology and services and the amounts you intend to use for sales and marketing activities.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Estimates
Stock-Based Compensation, page 50

4. We acknowledge your response to comment 25. Please revise your disclosure of the discussion of specific valuation factors from period to period to include the significant factors and assumptions used to determine the reassessed fair values. For example the August 31, 2009 to April 8, 2010 discussion should address the factors and assumptions used to calculate the fair value of the common stock that ranged from \$1.82 to \$2.45.

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You may contact James Peklenk at (202) 551-3661 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170 with any other questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Alan C. Mendelson
Gregory Chin
Latham & Watkins LLP
140 Scott Drive
Menlo Park, California 94025-1008