



DIVISION OF
CORPORATION FINANCE

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

November 29, 2012

Via E-mail

Panna L. Sharma
Chief Executive Officer
Cancer Genetics, Inc.
201 Route 17 North, 2nd Floor
Rutherford, NJ 07070

**Re: Cancer Genetics, Inc.
Amended Registration Statement on Form S-1
Filed November 16, 2012
File No. 333-178836**

Dear Mr. Sharma:

We have reviewed your amended 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.

General

1. 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. Similarly, please supplementally provide us with any research reports about you that are published or distributed in reliance upon Section 2(a)(3) of the Securities Act of 1933 added by Section 105(a) of the Jumpstart Our Business Startups Act by any broker or dealer that is participating or will participate in your offering.

Use of Proceeds, page 42

2. Given your strategy to seek FDA clearance or approval disclosed on page 4, please clarify whether proceeds of the offering will be used to seek such approval.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 51

Results of Operations, page 64

3. We note your disclosure in the second paragraph beneath the table regarding the substantial increase in revenues from your direct bill customers. Please clarify how you identify your direct bill customers and how these customers differ from others, including the non-medicare payors referenced in this section. For example, it is unclear when a hospital would or would not be a direct bill customer. We note your disclosure in the first paragraph on page 54 and in the fourth paragraph on page 106 regarding hospitals and direct billing.
4. We note your disclosure on page 106 regarding your reimbursement rates and the impact of out-of-network services. Please tell us, with a view to disclosure, whether your revenues from out-of-network transactions are significantly different than your revenues from in network services.

Liquidity and Capital Resources, page 68

Cash Flows, page 71

Cash Used in Investing Activities, page 73

5. We note your disclosure that the landlord agreed to reduce your security deposit requirement to a \$250,000 letter of credit upon a capital raise of at least \$20 million by July 31, 2012. Please revise your security deposit disclosure as necessary since the Company did not raise capital of at least \$20 million by July 31, 2012.

Legislative and Regulatory Changes Impacting Clinical Laboratory Tests, page 108

6. Please clarify the significance of the codes identified in the fourth paragraph of this section to your business.

Financial Statements

Unaudited Financial Statements for the Quarter Ended September 30, 2012

Notes to Unaudited Consolidated Financial Statements, page F-6

Note 3. Revenue and Accounts Receivable, page F-10

7. Please provide the information required by FASB ASC 954-310-50-3 or tell us why you believe this guidance does not apply to you.

Report of Independent Registered Public Accounting Firm, pages F-25

8. We note the use of a “to be issued” modification to the accountant’s report and assume that prior to effectiveness this paragraph will be removed, the accountants report will be dual dated for note 11 and that the related accountants’ consent will be filed. If our assumption is not correct, please advise.

Other Expenses of Issuance and Distribution, page II-1

9. We note the revised disclosure regarding payment of underwriter expenses on page 163. Please advise us why you have not included those expenses in this section.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company’s disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Panna L. Sharma
Cancer Genetics, Inc.
November 29, 2012
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You may contact Joanna Lam, Staff Accountant, at (202) 551-3476 or John Archfield, Senior Staff Accountant, at (202) 551-3315 if you have questions regarding comments on the financial statements and related matters. Please contact Ruairi Regan at (202) 551-3269 or James Lopez, Branch Chief, at (202) 551-3536 with any other questions.

Sincerely,

/s/ James Lopez (for)

John Reynolds
Assistant Director

cc (via e-mail): Alan Wovsaniker, Esq.
Lowenstein Sandler PC