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

DIVISION OF
CORPORATION FINANCE

June 5, 2012

Via E-Mail
Steven C. Quay, M.D., Ph.D.
Chairman, Chief Executive Officer and President
Atossa Genetics Inc.
4105 E. Madison Street, Suite 320
Seattle, Washington 98112

Re: Atossa Genetics Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed May 21, 2012
File No. 333-179500

Dear Dr. Quay:

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.

The Company, page 1

1. We note your response to prior comment 2. However, please clarify how, given the prices and billing rates listed on page 4 and the number of MASCT and ArgusCYTE collection kits you have sold and samples you have processed as of March 31, 2012, you generated only $54,713 in revenue. Additionally, please clarify why the discussion of your revenue as of March 31, 2012 on page 32 does not include any revenue from the sale of ArgusCYTE collection kits and processing of ArgusCYTE samples.

2. Please revise here and in your Business section beginning on page 41 to provide a full discussion of the status of your products, the results of any clinical trials and the development of your commercial operations. For example, we note that the agreements, clinical trials and the development of business operations discussed on pages 30 and 31 are not discussed elsewhere in the prospectus.

3. Please revise throughout the prospectus to clarify the extent to which your products are based upon technologies you own and the extent to which your products are based upon licenses or future licenses. For example, we note your reference to the acquisition of the NextCYTE technology on page 31 and your reference to a one-year option to license technology underlying the NextCYTE Breast Cancer Test from the University of Oslo on page 45.

Our Diagnostic Tests, page 2

4. We note your response to prior comment 4 and your revised disclosure on page 2. However, please revise to clarify what the ForeCYTE Breast Health Test's molecular and cellular biomarker test detects, or what type of information is contained in the "test results" mentioned on page 2. Please also revise this section to clarify how the FullCYTE Breast Health Test can make determinations assessing pre-cancerous changes in women previously identified to be at high risk for breast cancer. For example, please clarify what genomic interrogation is and clarify what the proprietary laboratory developed tests detect.

We have a history of operating losses and expect to continue to incur…, page 10

5. We note your response to prior comment 8 and your revised disclosure in this risk factor. However, please revise the title of this risk factor to highlight specifically the risk that the sale price of your MASCT System is currently substantially lower than its costs. Please also revise this risk factor to address the pricing and marketing strategy discussed in your response to prior comment 13.

Use of Proceeds, page 21

6. Please revise your use of proceeds table, as appropriate, to show how your proceeds and intended uses will vary should you sell less than 100% of the shares offered. Also, please further revise to clarify that since you are conducting a best efforts offering with no minimum offering amount, there is no assurance that any shares will be sold or revenues raised.

Management's Discussion and Analysis of Financial Condition…, page 25
Critical Accounting Policies and Estimates, page 27
Share-Based Payments, page 28

7. We reference prior comment 7. We do not see where you have disclosed aggregate intrinsic value of all outstanding options based on the midpoint of the estimated IPO price range. Please revise.

Certain Relationships And Related Transactions, page 74

8. We note your response to prior comment 10 and reissue. Given your disclosure that Ensisheim did not receive any consideration in exchange for the assignment of its rights, provide your analysis as to the enforceability of the assignment agreement. Revise your disclosure, as necessary.

Unaudited Consolidated Financial Statements for the three months ended March 31, 2012
Note 14. Related Party Transactions, page F-14

9. In the table on page F-19, please revise to state the beginning balance as "Outstanding as of January 1, 2012," not 2011.

Consolidated Financial Statements for the year ended December 31, 2011
Report of Independent Registered Pubic Accounting Firm, page F-21

10. We note the revisions made to the report of independent accountants in response to prior comment 11. Please request KCCW Accountancy Corp. further revise to define "inception" in the first and third paragraphs of its audit report.

Note 3. Summary of Significant Accounting Policies, page F-27
Inventories, page F-28

11. We note the response to prior comment 14. We note that you currently do not carry any inventory on your balance sheet at December 31, 2011. Please clarify if the lower of cost or market adjustment was for only units of the MASC system sold during the period presented or if you have written down inventory to zero at December 31, 2011.

Note 10. Stockholder's Equity, page F-31
Prior Issuances of Common Stock, page F-31

12. We reissue prior comment 15. We see that you continue to state that you issued in December 2009 the website developer $50,000 *or* 13,246 shares (30,000 post split). In substance, it appears that you issued the website developer $50,000 *in the form of* 13,246 shares. Please revise your disclosure as appropriate to disclose the substance of the transaction.

Private Placements and Warrants, page F-32

13. We reissue prior comment 16. We continue to not understand the basis for allocating proceeds "implicitly from an iterative process based on the assumption that the Private Placement was the result of an arm's length transaction." Generally, proceeds from a Private Placement would be allocated to stock and warrants based on their relative fair values. Please clarify how you determined the fair value of your common stock.

Exhibits

14. Your response to prior comment 21 appears to be inconsistent with your prospectus disclosure, including your revised risk factor disclosure on page 12 which continues to state that both your ability to commercialize and your profitability depend on the performance of your third-party suppliers. Please revise to clarify why you believe that your business is not substantially dependent upon any of your agreements with your suppliers, addressing specifically the fact that your Microcatheter System is manufactured by only one supplier. If the risk to you related to third party suppliers' failure to perform is material, as indicated in your current risk factor disclosure, please file the relevant supply agreements.

15. Please file:

- The supply agreement with your supplier for the ArgusCYTE test as disclosed on page 30;
- The agreement governing the acquisition of the FullCYTE Microcatheter System from Hologics as disclosed on page 31;
- The agreement governing the acquisition of the NextCYTE Technology as disclosed on page 31;
- The agreements with third-parties to perform reimbursement billing and disclosed on page 31; and
- The agreement governing the one-year option to license the technology for the NextCYTE Breast Cancer Test from the University of Oslo.

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.

You may contact Kristin Lochhead at (202) 551-3664 or Brian Cascio, Accounting Branch Chief, at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Allicia Lam at (202) 551-3316 or Daniel Morris, Special Counsel, at (202) 551-3314 with any other questions.

Sincerely,

/s/ Daniel Morris for

Amanda Ravitz
Assistant Director

cc (by e-mail): Ryan Murr
Ropes & Gray LLP