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

DIVISION OF
CORPORATION FINANCE

April 20, 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. 1 to Registration Statement on Form S-1
Filed April 6, 20120
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.

Prospectus Summary, page 1

1. We note your revised disclosure on page 3 in response to prior comment 2. Please revise to clarify that certain insurance carriers also do not currently reimburse for other NAF collection device systems similar to the MASCT system.

The Company, page 1

2. We note your added disclosure in response to prior comment 5. Given the prices listed for your collection devices and patient kits and billing rates on pages 3 and 4 and the number of MASCT and ArgusCYTE collection kits you have sold and samples you have processed as discussed on page 1, please clarify how you have only generated $1,500 in revenues from the sale of your products and services. Please also clarify the status of your commercial operations, noting in particular, your continued reference to your field experience trial on page 42.

3. We note your response to prior comment 6 and your revised disclosure on page 1. However, please revise to clarify whether a laboratory must be "CLIA-certified" in order to operate and if so, in which states this is a requirement. Please also revise this section to clarify the states from which you may currently accept testing samples.

Our Diagnostic Tests, page 2

4. We note your statement that your ForeCYTE Breast Health Test can calculate the 10-year and lifetime risk of breast cancer and the FullCYTE Breast Health Test can assess for pre-cancerous changes in women previously identified to be at high risk for breast cancer. Please clarify how your tests can make such determinations. For example, please clarify what the ForeCYTE Breast Health Test's molecular and cellular biomarker test detects and clarify what the clinically-validated risk assessment algorithm is and clarify who validated this algorithm.

Summary Financial Data, page 7

5. We see that you present "loss on reduction of inventory to LCM" in other operating expenses page 7 while this amount is presented within gross profit on the consolidated statement of operations on page F-4. Please revise to provide consistent presentation throughout your filing.

Use of Proceeds, page 20

6. We note your response to prior comment 9 and your revised disclosure on page 20. However, we note the statement that you "will retain broad discretion in using the net proceeds of this offering." Given that it appears that your estimated use of proceeds continues to include considerable discretion, to the extent that you are reserving the right to change the use of proceeds identified, please include a specific discussion of contingencies and alternatives. For guidance, please refer to Instruction 7 to Item 504 of Regulation S-K.

Management's Discussion and Analysis … and Results of Operations, page 24

Critical Accounting Policies and Estimates, page 25

Share-Based Payments, page 27

7. Please revise to provide a discussion of the significant judgments involved in determining the fair value of your common stock in assessing the fair value of share based compensation, including the following:

    - The aggregate intrinsic value of all outstanding options based on the midpoint of the estimated IPO price range.

- A specific discussion of the significant factors, assumptions and methodologies used in determining fair value for those options granted during the twelve months prior to the date of the most recent balance sheet.
- Disclose the valuation method used and the reasons why you choose that method.

Revenues and Cost of Goods Sold, page 28

8. Please add appropriate risk factor disclosure given your statement in this section that the sales price of your MASCT system is substantially lower than its cost.

Billing and Reimbursement, page 43

9. We note your response to prior comment 11 and your revised disclosure on page 43 that Medicare and certain insurance carriers do reimburse for the laboratory analysis of the NAF sample. Please revise here and throughout the registration statement to clarify for which laboratory analyses Medicare and certain insurance carriers will reimburse. For example, please revise to clarify if Medicare and certain insurance carriers reimburse for any part of the ArgusCYTE Breast Health Test.

Certain Relationships, page 69

10. Your revised disclosure in the final paragraph of this section appears to indicate that Ensisheim did not receive any consideration in exchange for the assignment of its rights. Please provide your analysis as to the enforceability of the assignment agreement or revise to clarify your disclosure.

Consolidated Financial Statements

Report of Independent Registered Pubic Accounting Firm, page F-2

11. We note that the auditors state in the first paragraph that they have audited the statements of operations, changes in stockholders' equity and cash flows "since inception." However, in the third paragraph, the auditors do not opine upon the inception to date operations and cash flows. Please request KCCW Accountancy Corp. revise the first and third paragraphs to specifically disclose the cumulative inception to date period covered by the audit report.

Consolidated Statements of Stockholders' Equity, page F-6

12. We see that you disclose the issuance of common shares for cash during April and June at $1.25 per share. However, it appears that you issued common shares *and* warrants at those dates. Please revise your presentation to accurately reflect the substance of the transaction.

Note 3. Summary of Significant Accounting Policies, page F-8

Revenue Recognition, page F-8

13. We see that you will sell MASCT kits and devices as well as diagnostic testing for samples collected from the MASCT device. Given the statement on page 27 that the MASCT system would not have a market without the analytical services you provide, please tell us how you considered that the MASCT system and analytical services are a multiple element arrangement under FASB ASC 605-25-25.

Inventories, page F-9

14. Please reconcile the statement that you did not identify any slow moving or obsolete inventory with the statement that you recognized a loss on reduction of inventory for the year ended December 31, 2011 of $92,026. Please revise to provide additional disclosure about why you recognized a loss on inventory and how the loss was determined. Please also explain the disclosure on page 27 that the sales price of the MASCT system is substantially lower than its cost and clarify the timing of when you recorded the impairment on the inventory.

Note 10. Stockholders' Equity, page F-12

Prior Issuances of Common Stock, page F-12

15. We note your response to prior comments 29 and 30. Please clarify the disclosure on page F-13 that you agreed in December 2009 to issue 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. In that regard, please revise the description of the transaction on the face of the statement of stockholders' equity to disclose the substance of the equity transaction. Please also remove any reference to the issuance being at $3.77 per share.

Private Placements and Warrants, page F-13

16. We reference prior comment 24 and the disclosure on page F-15 that the fair value of your common stock for April through December 2011 was determined "implicitly from an iterative process based on the assumption that the Private Placement was the result of an arm's length transaction." Please explain exactly how you allocated the proceeds from the offering to the value of the stock versus the warrants to arrive at the conclusion that the fair value of the stock at those dates was $0.906 per share. Please also tell us the accounting literature you referenced.

17. The disclosure on page F-14 indicates that you valued the Investor and Placement Agent Warrants "pursuant to a valuation performed by Grant Sherman LLC." Please tell us the

extent of the reliance that that you placed on the work of the valuation expert. In that regard, please tell us how you considered Question 141.02 of the Compliance and Disclosure Interpretations on Securities Act Sections, which can be found at http://www.sec.gov/divisions/corpfin/guidance/sasinterp.htm.

Note 14. Related Party Transactions, page F-17

Share Based Compensation, page F-18

18. We note the revisions made in response to prior comments 26 and 31. Regarding footnote (B) and the valuation of the common stock as of July 22, 2010, please tell us why you believe that it is appropriate to value your stock based upon the offering filed in March 2010 under which no shares of stock were sold. In addition, explain what you mean by "a random walk in continuous time with a rate of variance in proportion to the square of the stock price." Please tell us the specific method used to value your common stock and how that method was applied. In addition, tell us how you considered any issuances of stock for cash to third parties during this period.

19. In footnote (C), you reference the Private Placement during April through June 2011 at $1.60. It appears that the Private Placement was actually priced at $1.25 per share for stock and warrants. Please revise as necessary.

20. We reissue the second and third sentence of prior comment 26. Please revise your filing to provide a specific discussion of each significant factor contributing to the significant difference between the estimated fair value of your stock and the estimated IPO price range of $5 - $7 for the 12 months prior to the contemplated IPO. Please also explain the factors that contributed to the decrease in the fair value of your stock from $2.756 in June 2010 to $0.906 during 2011. Your discussion should focus on business or economic reasons that the fair value of your stock fluctuated, not the method used to determine fair value.

Exhibits

21. We note your response to prior comment 32. However, please clarify why you believe that your business is not substantially dependent upon any of your agreements with suppliers. Please address specifically your statement on page 12 that if your third-party suppliers cannot produce the MASCT device, patient collection kits or Microcatheter System in quantifies sufficient for your commercial needs on acceptable terms, or at all, you will be unable to commercialize your products and services and generate revenues from their sales as planned.

22. Please file the agreement governing the line of credit entered into on November 3, 2010 with your Chief Executive Officer which is described on page 69.

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