June 11, 2012

Via EDGAR and Overnight Delivery

Amanda Ravitz
U.S. Securities and Exchange Commission
100 F Street, N.E.
Mail Stop 3030
Washington, D.C. 20549

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

Dear Ms. Ravitz:

On behalf of Atossa Genetics Inc. ("***Atossa***" or the "***Company***"), we are responding to the Staff's letter dated June 5, 2012 (the "***Comment Letter***"), relating to the above-referenced Amendment No. 2 to Registration Statement on Form S-1 (the "***Registration Statement***"). In response to the comments set forth in the Comment Letter, the Registration Statement has been amended and Atossa is filing pre-effective Amendment No. 3 to the Registration Statement ("***Amendment No. 3***") with this response letter. For your convenience, we have repeated the Staff's comments below in bold face type before each of our responses below. The numbered paragraphs of this letter correspond to the numbered paragraphs of the Comment Letter. References to "we," "our" or "us" mean the Company or its advisors, as the context indicates.

We also wish to note that the Company intends to print its "red herring" prospectus based on the form of preliminary prospectus that is contained in Amendment No. 3.

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.**

In response to the Staff's comment, the Company has clarified its disclosure with respect to prices and billing rates associated with the ForeCYTE and ArgusCYTE tests.

Additionally, the Company advises the Staff that, despite the number of MASCT and ArgusCYTE collections kits sold and samples that have been processed, the Company has only generated $54,713 in revenue as of March 31, 2012 as follows: the Company has processed 276 ForeCYTE samples, which is the equivalent of 138 patients because two samples are taken from each patient (i.e., one per breast). Medicare has a basic reimbursement rate of $384 per patient, which results in revenue of $52,992. The remaining sum ($1,721) is attributed to additional charges relating to immunohistochemistry staining of slides, which increases the Medicare reimbursement rate beyond the $384 sum per patient. The Company has also revised the prospectus to clarify the Medicare rates at which the Company has historically billed and the rates at which it generally expects to bill in the future.

While conducting its field experience trial, the Company is not currently charging doctors and clinics for the ArgusCYTE collection kits and thus has not received any revenue from such sales. Further, because the Company does not have a sufficiently reliable prior history of reimbursement with respect to the ArgusCYTE test, the Company has elected to recognize revenue only after the Company has been reimbursed for samples that have been processed. As of March 31, 2012, the Company has not yet received any such reimbursement. The Company has also revised the prospectus to clarify that it is not charging or collecting for sales of the ArgusCYTE kits during the field experience trial and that it has not yet recognized revenue from the ArgusCYTE tests performed to date.

The Company, page 1

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.**

In response to the Staff's comment, the Company has clarified certain of the specific actions taken between September 2011 and February 2012, which have been presented on pages 32 and 33 to identify the corporate achievements that helped to support the increase in value of the common stock during that time. The results of these activities (e.g., establishment of the NRLBH laboratory facility and commercial launch of the ForeCYTE and ArgusCYTE tests) has already been disclosed in the business descriptions contained in the summary and the Business section. The Company does not believe that any of the actions listed on pages 32 and 33 represent additional disclosure that is material to an overall understanding of the business. However, in response to the Staff's comment, the Company has added references to certain of these activities in the Business section to provide additional information relating to the Company's historical operations and activities.

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.**

In response to the Staff's comment, the Company has revised its disclosure accordingly. On pages 2, 3, 43 and 44, the Company has added disclosure regarding the Company's interests in the technologies underlying the tests and, on page 33, the Company has clarified that the Company obtained an option to acquire rights to the NextCYTE test.

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.**

In response to the Staff's comment, the Company has revised the reference to genomic interrogation and has clarified that the FullCYTE tests being performed are substantially the same as the ForeCYTE test, though testing fluid from individual ducts.

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.**

In response to the Staff's comment, the Company has revised its disclosure accordingly.

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.**

In response to the Staff's comment, the Company has clarified that the uses of proceeds are presented in the order of planned expenditures, in the event that the Company raises a lesser amount of capital.

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.**

In response to the Staff's comment, the Company has revised its disclosure accordingly.

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.**

In response to the Staff's comment, the Company has revised its disclosure to clarify that Ensisheim did receive value in the assignment, which constituted non-cash consideration. As we discussed with the Staff, the assignment was deemed a contribution to capital by Ensisheim. Accordingly, Ensisheim received an increase in its tax basis in the shares of Atossa common stock that it holds. The assignment agreement recites the fact that the parties mutually received consideration and that such consideration was adequate. Accordingly, the Company believes that the assignment agreement is enforceable.

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.**

In response to the Staff's comment, the Company has revised the table accordingly.

Consolidated Financial Statements for the year ended December 31, 2011
Report of Independent Registered Public 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.**

In response to the Staff's comment, the audit report has been revised accordingly.

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.**

The Company advises the Staff that it has written down its entire inventory to zero as a result of *lower of cost or market* adjustment as of December 31, 2011 and at March 31, 2012. The adjustment primarily resulted from the sales price of the MASCT System being substantially lower than its cost, which is not related to slow moving or obsolescence issues.

The reduction of the Company's inventory to a zero value based on lower of cost or market is for the balance sheet presentation to the effect that the cost is higher than the market value as of the balance sheet dates, as defined under FASB ASC 330-10-35-1, which states that the utility of goods, in their disposal in the ordinary course of business, will be less than cost. The term "market" means current replacement cost by purchase, provided that it meets both of the following conditions:

a. Market shall not exceed the net realizable value.

b. Market shall not be less than net realizable value reduced by an allowance for an approximately normal profit margin.

The Company's LCM analysis concluded that the "market" of its inventory was the net realizable value as of the balance sheet dates, which was substantially below the carrying cost of inventory.

Additionally, the write-down of the Company's inventory as of the balance sheet dates was also partly because of compliance with FASB ASC 330-10-35-13 which states that the offer of a sales incentive that will result in a loss on the sale of a product may indicate an impairment of existing inventory.

The Company does recognize Cost of Goods Sold based on the weighted-average carrying cost of the inventory items sold in the period, while capturing the inventory write down due to LCM for the remaining inventory items as of the balance sheet dates and reflecting it as a separate line item below Cost of Goods Sold on the consolidated statements of operations due to the significance of the amount. The Company has considered FASB ASC 330-10-35-7, which states that if a business is expected to lose money for a sustained period, the inventory shall not be written down to offset a loss inherent in the subsequent operations. To that extent, the Company has not written down inventory for the purpose of offseting a loss inherent in the subsequent operations.

Regarding the process of the LCM adjustment, the Company's LCM adjustment is performed on a quarterly basis. The timing of the process is:

- Inventory is purchased throughout the period, and is not tied to a specific customer order.
- The bulk of the Company's inventory was purchased in 2011 in preparation for the sale of the MASCT kit.
- At quarter end, the units of inventory sold in the period are reconciled and confirmed with the Sales revenue item.
- The corresponding Cost of Goods Sold determined based on the weighted-average carrying cost of the inventory items sold in the period is recorded.
- An LCM analysis is performed as of the balance sheet dates. An entry is recorded at quarter end for the LCM adjustment once Revenue and Cost of Goods Sold have been recorded and reconciled.

Note that there is no customer contract related to the remaining inventory at quarter end or year end which has been written down to zero.

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.**

In response to the Staff's comment, the Company has revised its disclosure accordingly.

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.**

In response to the Staff's comment, the Company has revised its disclosure accordingly. As we discussed with the Staff, the Company initially fixed the offering price at $1.25 per Unit based on negotiations with the placement agent for the offering. In allocating the relative value of the common stock and warrants that comprised the Unit, the Company, with the assistance of a third-party valuation firm, performed a valuation of the warrants, using the Black-Scholes method and an estimated value of the common stock. The sum of the estimated common stock value and the warrant value was then compared to the

$1.25 Unit value, after which the estimated value was adjusted up or down, as appropriate, and the valuation was performed again in an iterative fashion until the sum of the estimated value of the common stock and the resulting Black-Scholes value of the warrant equaled the $1.25 Unit price. These are the values that are presented in the prospectus.

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.**

In response to the Staff's comment, the Company has filed the supply agreements as exhibits to Amendment No. 3.

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.**

In response to the Staff's comment, the Company has filed all but one of the requested agreements as exhibits to Amendment No. 3. The Company has not filed the agreements with third parties to perform reimbursement billing as this agreement is not material to the Company, nor is the Company substantially dependent on this agreement and it is therefore not required to be filed pursuant to Item 601 of Regulation S-K. There are many third-party reimbursement billing service providers and any change in or disruption to this relationship would not be expected to adversely affect the Company's operations as the Company believes that it would be able to timely enter into a substantially similar arrangement with one of many other companies that provide these types of services.

We note that the Company has sought confidential treatment of certain terms of these agreements that are being filed as exhibits to the Registration Statement and will file a Confidential Treatment Request concurrent with the filing of Amendment No. 3.

Sincerely,

/s/ Ryan A. Murr
Ryan A. Murr

RAM:lcv