June 25, 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. 4 to Registration Statement on Form S-1
Filed June 18, 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 19, 2012 (the "***Comment Letter***"), relating to the above-referenced Amendment No. 4 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. 5 to the Registration Statement ("***Amendment No. 5***") 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.

Our Diagnostic Tests, page 2

1. While we note your response to prior comment 4, please further revise to disclose whether present methods of analyzing traditional biopsy specimens could be used to achieve results similar to or better than those provided by your tests.

In response to the Staff's comment, the Company has revised its disclosure accordingly on pages 2, 3, 43, 44 and 45 of Amendment No. 5.

2. We note your response to prior comment 5. With a view to disclosure, please describe the additional technology that you hold an option to license from Oslo. Please also clarify the significance of the additional technology to the operation or future development of your existing technology.

In response to the Staff's comment, the Company has revised its disclosure accordingly on pages 3, 45 and 48 of Amendment No. 5.

Plan of Distribution, page 87

3. Revise the final sentence of the second paragraph of this section to clarify the circumstances under which you would choose not to complete the offering. Similarly, please revise the same sentence to describe the factors that would cause you not to accept an investment.

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

Consolidated Statements of Operations, page F-23

4. Please revise the statement of operations to reclassify Loss on Reduction of Inventory to LCM from operating expenses to gross profit.

In response to the Staff's comment, the Company has revised its Consolidated Statement of Operations accordingly.

Exhibit 10.27

5. We note your response to prior comment 16 states that the "blood collection system" is 510(k) exempt. Please revise your response to clarify why the agreement states that the kits and supplies "are not approved by the FDA and must not be used for diagnostic purposes." To the extent that relevant events occurred after the supply agreement was entered into, please so state.

The supply agreement states that the kits and supplies are not approved by the FDA to clarify that the manufacturer, Biomarker LLC, has not submitted the test to the FDA for clearance or approval. The supply agreement also states that the kits and supplies must not be used for diagnostic purposes to clarify that these are not analyte specific reagents, or ASRs, which would require Biomarker LLC to register with the FDA as a manufacturer, as fully described in the FDA-related risk factor on page 18 of Amendment No. 5. This labeling is the standard for most kits and supplies that are used to develop and validate CLIA-certified tests.

The risk factor also states the process whereby a high complexity laboratory, such as the Company's CLIA-certified laboratory, can develop and validate a test that does not require FDA approval.

The results of the ArgusCYTE validation is as described on page 47 of Amendment No. 5. After entering into the supply agreement, the Company validated this test before introducing it into commerce. As indicated in the risk factor, the FDA does not currently regulate tests such as the ArgusCYTE test.

For the Staff’s convenience, we have enclosed a marked copy of Amendment No. 5 indicating the revisions made in response to the Staff’s comments.

Sincerely,
/s/ Lisa M. Kahle
Lisa M. Kahle

Enclosure