October 19, 2012

Via EDGAR and Overnight Delivery

Amanda Ravitz
Assistant Director
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: Atossa Genetics Inc.
Amendment No. 9 to Registration Statement on Form S-1
Filed October 4, 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 October 16, 2012 (the "***Comment Letter***"), relating to the above-referenced Amendment No. 9 to the 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. 10 to the Registration Statement ("***Amendment No. 10***") 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.

Recent Developments, page 6

1. We note your added disclosure regarding the acquisition of Acueity Healthcare, Inc. on September 30, 2012. Please revise your Summary and Business sections to provide additional detailed disclosure explaining if, and how, this acquisition complements and/or alters your current business, including your allocation of resources, intellectual property portfolio, business strategy, expected timetables for your existing product lines and the additional steps necessary to commercialize your newly acquired assets. Please also revise your risk factor disclosure to describe any material risks related to the acquisition. In addition, revise your Use of Proceeds disclosure, as necessary, to reflect any changes to your anticipated uses as a result of the acquisition.

In response to the Staff's comment, the Company has revised its Summary and Business sections to provide additional detailed disclosure explaining how the asset purchase complements the Company's current business, including its allocation of resources, intellectual property portfolio, business strategy, and the additional steps necessary to commercialize the newly acquired assets. This asset purchase is not expected to have an impact on the development and commercialization timetables of the Company's existing product lines and the Company has so stated in Amendment No. 10; please see the enclosed copy of Amendment No. 10 that is marked to show changes for your convenience. The Company has also revised the risk factor disclosure, and added a new risk factor specifically addressing the Acueity asset purchase, to describe any material risks related to the asset purchase. The Use of Proceeds disclosure has been changed to reflect the anticipated uses as a result of the acquisition of assets (because the commercialization of these assets will not commence until the end of 2013, as disclosed in Amendment No. 10, the only use of proceeds relating to this asset purchase is an estimated $50,000 related to patent maintenance fees and application prosecution expenses).

2. Please tell us how you evaluated the guidance in FASB ASC 805-10-55-4 through 8 in determining that Acueity is not a business. Under this guidance, determining whether a particular set of assets and activities is a business should be based on whether the integrated set is capable of being conducted and managed as a business by a market participant. Thus, in evaluating whether a particular set is a business, it is not relevant whether a seller operated the set as a business or whether the acquirer intends to operate the set as a business.

The proper analysis of whether the Acueity assets constitute a business requires an examination of the asset purchase in light of ASC 805-10-55-4 through 55-8 and includes the following guidance on applying the definition of a business (followed in each case with an assessment of the facts of the Acueity asset purchase):

1. A business consists of inputs and processes that have the ability to produce outputs. Thus, a development-stage company that has not yet begun producing outputs may be a business.

    a. The assets purchased consist of patents, patent applications, and FDA 510(k) medical device marketing authorizations. No tangible assets, such as inventory, manufacturing equipment, tools, etc. were acquired in the asset purchase. Patents and patent applications confer the legal right to exclude others from practicing the business or the "outputs" of the claimed invention but in and of themselves are not inputs or processes that are capable of producing an output. Patents and patent applications might be considered "inputs" for a business that does not practice the patents it owns but whose business instead is to license from or to litigate against businesses that infringe its estate; this is not, however, the Company's business model or Acueity's business model had it engaged in operating activities. FDA market authorizations are similar in that they are a necessary but not sufficient part of commercializing a medical device. Only by establishing (either by contract with a third party or internally) a manufacturer for the medical device, establishing a supply chain for the parts needed to make the device, and conducting the steps necessary to launch an FDA-cleared medical device is an "output" established. Importantly, the Company did not acquire any manufacturing documents, specifications, procedures, or processes to commercialize the acquired medical devices. Using the specific language of 805-10-55-4, the Company may have acquired one category of the inputs, which is the intellectual property, but the Company did not acquire, nor did Acueity possess, other inputs, such as the ability to obtain access to necessary materials or rights, and employees. Additionally, the Company did not acquire, nor did Acueity possess, any system, standard, protocol, convention or rule that, when applied to an input or inputs, creates or has the ability to create outputs. Furthermore, Acueity was not accessing customers that will purchase the outputs. Although the Company's October 3, 2012 response letter referenced the "Manoa Breast Biopsy System" and that the "Acueity Excisor Bioptome" is a "multiple action biopsy system," the Manoa Breast Biopsy System is simply the name of the device; the Manoa Breast Biopsy System is not a "system" in terms of being able to be applied to an input or inputs to create or have the ability to create outputs. Further, that the Acueity Excisor Bioptome is described as a multiple action biopsy system comes from the 510(k) notification describing the intended use of the Acueity Excisor Bioptome. As is the case with the Manoa Breast Biopsy System, the Acueity Excisor Bioptome is not a "system" in terms of being able to be applied to an input or inputs to create or have the ability to create outputs.

b. As previously disclosed in the Summary and in the Business section of the Registration Statement, “We did not, however, acquire an inventory of these diagnostic tools, manufacturing capabilities or any personnel to market and sell the tools.”

2. The determination of whether an integrated set of assets and activities is a business should be based on whether that set could be conducted and managed as a business by a market participant (as defined in the ASC Glossary). However, a business need not include all of the inputs and processes used by the seller to produce outputs if market participants are capable of acquiring the business and continuing to produce outputs by integrating the acquired set with their own inputs and processes.

a. This analysis is best conducted by determining if the inputs and processes the Company currently uses to make its existing medical devices could be used for the medical devices acquired in the Acueity asset purchase. Starting with the raw materials and components for the Company’s existing medical devices and the Acueity devices, **none** of the raw materials or components is common to any of the Company’s existing medical devices and the Acueity devices; every device has unique components and raw materials. Further, the assembly of each device is unique; none of the assembly processes are common. The FullCYTE microcatheter and the Acueity Microendoscope both require that they be sterilized before shipping but the microcatheter is a single use device, whereas the Microendoscope is reusable if sterilized between patients. In summary, none of the Acueity devices can be made by the inputs and processes that existed at the Company at the time of the asset purchase and therefore the Company cannot produce outputs by integrating the acquired assets with its own inputs and processes.

3. We reference the statements on page 5 of your response letter dated October 3, 2012 of each system or medical device that you acquired. Please explain how you determined that these systems or devices do not represent inputs and/or processes as defined in FASB ASC-805-10-55-4.

The statements contained on page 5 of the Company's response letter are the direct wording from the FDA-clearance of each medical device. This is the "legal" description of the medical device from the FDA's perspective. As noted in paragraph 1.a under comment 2 above, it is not an input or process that could be taken to a medical device manufacturer and used directly to make a medical device (an output). Again, no tangible assets, such as inventory, manufacturing equipment, tools, etc. were acquired in the asset purchase.

4. We reference the statement in your response letter dated October 3, 2012 that you are performing analysis to determine the value of the assets acquired and any residual goodwill following the asset purchase. In making your conclusion that Acueity is not a business, please tell us how you considered FASB ASC 805-10-55-9 which states that in the absence of evidence to the contrary, a particular set of assets and activities in which goodwill is present shall be presumed to be a business.

As noted by the Staff in the Company's October 3, 2012 response letter, the Company indicated it was conducting an analysis of the value of the individual assets acquired and any residual goodwill following the asset purchase. The reference to residual goodwill was inadvertent. The Company intended to indicate that it is in the process of conducting an analysis of the value of the individual assets acquired and the proper allocation of the purchase price among those assets. This analysis is currently ongoing to determine the proper allocation of the purchase price among the cash, intellectual property and FDA clearances that were acquired from Acueity. Although this analysis is ongoing, there will not be residual goodwill as a result of the asset purchase.

5. Please revise your filing to disclose how you valued the stock and warrants issued to acquire the assets of Acueity. Refer to FASB ASC 805-30-30-7 and 8.

During arm's-length negotiations regarding the asset purchase, the Company and Acueity determined that the value of the Acueity assets (i.e., the cash, intellectual property and FDA clearances) to be acquired by the Company was approximately $5.1 million. Based upon this amount as total consideration for the deal, the Company and Acueity determined that the Company would issue to Acueity 862,500 shares of common stock at $5.00 per share. The shares of common stock were valued at $5.00 per share as this is the midpoint of the range of the price of the common stock being offered in this offering. The Registration Statement has been revised to reflect that the shares of common stock were valued at $5.00 per share. The Company also valued the warrants utilizing a Black-Scholes-Merton valuation technique based on the following assumptions: fair value of common stock on date of grant of $5.00 per share, the exercise price of the warrants is $5.00, the expected life of the warrants is 5 years, the dividend yield is 0.0%, the expected volatility is 56.54%, the risk-free interest rate is 0.62%, and the expected forfeiture per year is 0%. The risk-free interest rate reflects the interest rate for United States Treasury Note with similar time-to-maturity to that of the warrants. The expected life of the warrants was derived from the output of the valuation model and represent the period of time that the warrants are expected to be outstanding. We did not have a historical trading history sufficient to develop an internal volatility rate for use in the model. As a result, as required by FASB ASC 718-10-30, the Company has accounted for the warrants using the calculated value method. The Company identified seven public entities in a similar industry for which share price information was available, and considered the historical volatilities of those public entities' share prices in calculating the expected volatility appropriate to the Company. The Registration Statement has been revised to reflect the valuation of the warrants at $2.3457 per warrant.

6. We note that you completed your third fiscal quarter on September 30, 2012. To the extent that you have engaged in additional communication with NASDAQ regarding your ability to satisfy the initial listing standards of the NASDAQ Capital Market, please revise to update your disclosure.

The Company has had further discussions with NASDAQ regarding its ability to satisfy the initial listing standards of the NASDAQ Capital Market and the disclosure in Amendment No. 10 has been revised to reflect that the Company must raise at least $6.25 million in gross proceeds in this offering to be able to list its common stock on the NASDAQ Capital Market. As reflected in Amendment No. 10, the Company has also determined to sell 1,300,000 shares in the offering instead of 1,200,000 shares, which would raise gross proceeds of $6.5 million at $5.00 per share, which is the midpoint of the range in the Registration Statement.

Should you have any questions or concerns, please call me at (415) 315-6320.

Sincerely,

/s/ Lisa M. Kahle

Lisa M. Kahle

Enclosure