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

Amendment No. 6 to
FORM S-1
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

ATOSSA GENETICS INC.

Delaware
(State or other jurisdiction of
incorporation or organization)

(Exact name of registrant as specified in its charter)

3841

(Primary Standard Industrial
Classification Code Number)

26-4753208
(I.R.S. Employer
Identification Number)

**4105 E. Madison Street, Suite 320
Seattle, Washington 98112
(206) 325-6086**

(Address, including zip code, and telephone number,
including area code of registrant's principal executive offices)

Steven C. Quay, M.D., Ph.D.
Chairman, Chief Executive Officer and President
4105 E. Madison Street, Suite 320
Seattle, Washington 98112
(206) 325-6086

(Name, address, including zip code, and telephone number,
including area code, of agent for service)

Copies to:

**Ryan Murr
Lisa Kahle
Ropes & Gray LLP
Three Embarcadero Center
San Francisco, California 94111
Phone: (415) 315-6300**

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1001 Page Mill Road
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Palo Alto, California 94304
Phone: (650) 739-7500**

Approximate Date of Commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

The registrant is an emerging growth company, as defined in Section 2(a) of the Securities Act. This Registration Statement complies with the requirements that apply to an issuer that is an emerging growth company.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in

accordance with section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission acting pursuant to said section 8(a), may determine. ■

EXPLANATORY NOTE

This Amendment No. 6 to the registration statement on Form S-1 (File No. 333-179500) of Atossa Genetics Inc. is being filed solely to amend Item 16 of Part II hereof and to transmit an updated Exhibit 23.1 hereto. This Amendment No. 6 does not modify any provision of the preliminary prospectus contained in Part I or Items 13, 14, 15 or 17 of Part II of the registration statement. Accordingly, this Amendment No. 6 does not include a copy of the preliminary prospectus.

PART II

Item 13. Other Expenses of Issuance and Distribution

The expenses (other than placement agent fees) payable by us in connection with this offering are as follows:

	Amount
SEC registration fee	\$ 923
Financial Industry Regulatory Authority, Inc. fee	\$ 1,305
NASDAQ listing fee	\$ 50,000
Accountants' fees and expenses	\$ 15,000
Legal fees and expenses	\$ 250,000
Transfer Agent's fees and expenses	\$ 25,000
Printing and engraving expenses	\$ 60,000
Miscellaneous	\$ 122,772
Total Expenses	\$ 500,000

* to be completed by amendment

All expenses are estimated except for the SEC registration fee, the Financial Industry Regulatory Authority, Inc. fee and the NASDAQ listing fee.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law, or the DGCL, authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees) judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our certificate of incorporation and bylaws to be in effect at the completion of this offering that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

In addition, our bylaws to be in effect at the completion of this offering will provide that:

- we will indemnify our directors, officers and, in the discretion of our Board of Directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our Board of Directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We have entered into indemnification agreements with each of our directors and certain of our executive officers. These agreements provide that we will indemnify each of these directors and executive officers to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees, judgments, fines and settlement amounts, to each indemnified director, executive officer or affiliate in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as an officer or director brought on behalf of the Company or in furtherance of our rights.

We maintain general liability insurance that covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act.

The placement agent agreement filed as Exhibit 1.1 to this registration statement provides for indemnification of us and our directors and officers by the placement agent against certain liabilities under the Securities Act and the Exchange Act.

Item 15. Recent Sales of Unregistered Securities

The Company has sold the following securities within the past three years which were not registered under the Securities Act of 1933:

Pursuant to an exemption from registration under Section 4(2) of the Securities Act of 1933, as amended, as a transaction by an issuer not involving any public offering as founder shares in connection with the formation of the Company, the Company issued 4,899,888 shares of its common stock as follows:

	<u>Shares</u>	<u>Date</u>	<u>Consideration</u>
Steven Quay	883,662	April 30, 2009	\$ 12,000
Ensisheim Partners LLC	1,767,316	April 30, 2009	(1)
Ensisheim Partners LLC	883,658	December 28, 2009	\$ 100,000
Manistee Ventures, Inc.	1,325,487	April 30, 2009	\$ 18,000
John Barnhart	39,765	July 28, 2009	\$ 540

(1) The 1,767,316 shares of common stock issued to Ensisheim Partners LLC at the Company's inception were issued in consideration for \$24,000 in cash and this entity's contribution to the Company of intellectual property rights and FDA marketing authorization for the MASCT System.

In January 2010, pursuant to an exemption from registration under Rule 504 pursuant to the Securities Act of 1933 (the "Securities Act"), the Company issued an aggregate of 901,354 shares of its common stock to 45 investors for aggregate cash proceeds of \$102,000. Of these 45 investors, 13 are accredited investors and 4 are citizens and residents of Taiwan, Republic of China.

In January 2010, the Company issued 185,569 shares in consideration for services performed by two consultants, with an aggregate value of \$21,000. This offering was exempt from registration under Rule 504 under the Securities Act.

On April 23, 2010, the Company issued 13,256 shares of common stock for services performed by a consultant with an aggregate value of \$50,000. This offering was exempt from registration under Section 4(2) of the Securities Act, as a transaction by an issuer not involving any public offering.

Between April 2011 and July 2011, the Company issued a total of 5,256,800 shares of the Company's common stock and warrants to purchase up to an additional 5,256,800 shares of common stock at a price of \$1.60 per share, for aggregate gross proceeds of \$6,571,000 (the "Private Placement"). All purchasers in the Private Placement were accredited investors, as defined under Regulation D under the Securities Act, and this offering was exempt from registration under Rule 506 under the Securities Act. In connection with the completion of the Private Placement, the Company issued common stock warrants to Dawson James Securities ("Dawson James"), the placement agent for the Private Placement, representing the right to purchase up to 788,520 shares of common stock at a price of \$1.25 per share, plus the right to purchase up to 788,520 additional shares of common stock at a price of \$1.60 per share. The issuance of the warrants to Dawson James was exempt from registration under Section 4(2) of the Securities Act, as a transaction by an issuer not involving a public offering.

Item 16. Exhibits and Financial Statement Schedules.

EXHIBITS

1.1**	Form of Placement Agent Agreement
3.1**	Certificate of Incorporation, as currently in effect
3.2**	Certificate of Incorporation (to be effective immediately prior to completion of this offering)
3.3**	By-laws, as currently in effect
3.4**	By-laws (to be effective immediately prior to completion of this offering)
4.1**	Specimen common stock certificate
5.1**	Opinion of Ropes & Gray LLP
10.1**	Exclusive Patent License Agreement with Ensisheim Partners, LLC, dated July 27, 2009
10.2**	Termination of Exclusive Patent License Agreement, dated June 17, 2010
10.3**#	Restated and Amended Employment Agreement with Steven Quay
10.4**#	Restated and Amended Employment Agreement with Shu-Chih Chen
10.5**	Form of Indemnification Agreement
10.6**#	2010 Stock Option and Incentive Plan, as amended
10.7**#	Form of Incentive Stock Option Agreement
10.8**#	Form of Non-Qualified Stock Option Agreement for Employees
10.9**#	Form of Non-Qualified Stock Option Agreement for Non-Employee Directors
10.10**	Form of Subscription Agreement
10.11**	Sublease Agreement with CompleGen, Inc. dated September 29, 2010
10.12**	Patent Assignment Agreement by and between the Company and Ensisheim Partners, LLC
10.13**#	Form of Restricted Stock Award Agreement
10.14**	Form of Lock-Up Agreement
10.15**	Agreement with Christopher Benjamin
10.16**	Business Consultant Agreement with Edward Sauter
10.17**	Prototype Development Proposal and Terms and Conditions, between the Company and HLB, LLC.
10.18**	Commercial Lease Agreement with Ensisheim Partners LLC, dated December 24, 2009
10.19**	Termination of Lease Obligation with Ensisheim Partners LLC, dated July 21, 2010
10.20**	Office Lease with Sander Properties, LLC, dated March 4, 2011
10.21**	Office Lease with Sander Properties, LLC, dated July 8, 2011
10.22**	Office Lease with Sander Properties, LLC, dated September 20, 2011
10.23**	Sublease with Fred Hutchinson Cancer Research Center, dated December 9, 2011
10.24**	Promissory Note — Line of Credit, effective November 3, 2010, by and between the Company and Steven C. Quay
10.25**†	Term Sheet for License Agreement between the Company and Inven2 AS
10.26**†	Agreement between the Company and Accellent Inc., dated August 8, 2011
10.27**†	Supply Agreement between the Company and Biomarker LLC, dated June 24, 2011
10.28**†	Purchase Agreement between the Company and Hologic Inc., dated May 11, 2011
10.29**	Agreement between the Company and Biomarker LLC, dated June 22, 2012
23.1	Consent of KCCW Accountancy Corp.
23.2**	Consent of Ropes & Gray LLP (filed as part of Exhibit 5.1)
24.1**	Power of Attorney

** Previously filed.

Indicates management contract or compensatory plan, contract or agreement.

† Confidential treatment has been requested for portions of this exhibit. These portions have been omitted from the Registration Statement and submitted separately to the Securities and Exchange Commission.

Item 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the placement agent at the closing specified in the placement agent agreement certificates in such denominations and registered in such names as required by the placement agent to permit prompt delivery to each purchaser. The undersigned registrant hereby undertakes:

1. For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
2. For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 6 to this Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Seattle, State of Washington, on August 10, 2012.

ATOSSA GENETICS INC.

By: /s/ Steven C. Quay

Name: Steven C. Quay, M.D., Ph.D.

Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 6 to this Registration Statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Steven C. Quay</u> Steven C. Quay, M.D., Ph.D.	President, Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	August 10, 2012
<u>/s/ Christopher Benjamin</u> Christopher Benjamin	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	August 10, 2012
<u>*</u> John Barnhart	Director	August 10, 2012
<u>*</u> Alexander Cross, Ph.D.	Director	August 10, 2012
<u>*</u> Shu-Chih Chen, Ph.D.	Director	August 10, 2012
<u>*</u> Stephen J. Galli, M.D.	Director	August 10, 2012
<u>*</u> H. Lawrence Rimmel	Director	August 10, 2012
<u>*By: /s/ Steven C. Quay</u> Attorney-in-Fact		

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the use in this Amendment No. 6 to the Registration Statement on Form S-1 of Atossa Genetics Inc. (a development stage company) of our report dated March 22, 2012 relating to the consolidated financial statements as of and for the years ended December 31, 2011 and 2010 appearing in the Prospectus, which is part of this Registration Statement. We also consent to the reference to us under the heading "Experts" in such Prospectus.

/s/ KCCW Accountancy Corp.

Diamond Bar, California
August 10, 2012
