

Our common stock is listed on the NASDAQ Capital Market under the symbol "ATOS." On January 22, 2014, the last reported sales price of our common stock on the NASDAQ Capital Market was \$3.02 per share. We do not intend to list the warrants on the NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Investing in our securities involves certain risks. Before purchasing our common stock and warrants, please review the information, including the information incorporated by reference, under the heading "Risk Factors" beginning on Page S-11 of this prospectus supplement and Page 5 of the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

We have retained Dawson James Securities, Inc. to act as our exclusive placement agent in connection with the Units offered by this prospectus supplement. We have agreed to pay the placement agent a placement agent fee equal to 7% of the gross proceeds. The per Unit placement agent fees are set forth in the table below, which assumes that we sell all of the Units we are offering. We will also issue to the placement agent a number of warrants to purchase common stock equal to 3% of the aggregate number of shares sold in the offering. We will deliver to the placement agent the shares of common stock and warrants, and such securities will be distributed by the placement agent to the respective investors. The placement agent is not purchasing or selling any of the Units we are offering, and it is not required to arrange the purchase or sale of any specific number of Units or dollar amount, but they have agreed to use their "best efforts" to arrange for the sale of the Units offered by this prospectus supplement.

	Per Unit	Total
Offering price	\$	\$
Placement agent fees ⁽¹⁾	\$	\$
Proceeds, before expenses, to us	\$	\$

⁽¹⁾ In addition, we have agreed to reimburse the placement agent for certain of its expenses as described under "Plan of Distribution" on page S-14 of this prospectus supplement.

The above summary of offering proceeds to us does not give effect to any exercise of the warrants being issued in this offering. Delivery of the shares of common stock and warrants will be made on or about _____, 2014. We estimate the expenses of this offering, excluding placement agent fees, will be approximately \$50,000.

Because there is no minimum offering amount required as a condition to closing this offering, the actual offering amount, the placement agent fees and net proceeds to us, if any, in this offering may be substantially less than the maximum offering amounts set forth above.

DAWSON JAMES SECURITIES, INC.

The date of this prospectus supplement is January _____, 2014.

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT

ABOUT THIS PROSPECTUS SUPPLEMENT	S-1
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	S-2
PROSPECTUS SUPPLEMENT SUMMARY	S-4
THE OFFERING	S-10
RISK FACTORS	S-11
USE OF PROCEEDS	S-12
DILUTION	S-13
PLAN OF DISTRIBUTION	S-14
DESCRIPTION OF THE SECURITIES	S-16
DIVIDEND POLICY	S-17
LEGAL MATTERS	S-17
EXPERTS	S-17
PROSPECTUS	

ABOUT THIS PROSPECTUS	1
NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT THE COMPANY	3
RISK FACTORS	5
USE OF PROCEEDS	5
Ratio of Earnings to Fixed Charges	5
PLAN OF DISTRIBUTION	5
Description of Securities to be Registered	7
EXPERTS	22
LEGAL MATTERS	22
WHERE YOU CAN FIND Additional INFORMATION	22
Information Incorporated BY REFERENCE	22

ABOUT THIS PROSPECTUS SUPPLEMENT

This document consists of two parts. The first part is this prospectus supplement, which describes the specific terms of this offering. The second part, the accompanying prospectus, gives more general information, some of which may not apply to this offering. Generally, when we refer only to the “prospectus,” we are referring to both parts combined. This prospectus supplement may add to, update or change information in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement or the accompanying prospectus.

If information in this prospectus supplement is inconsistent with the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission before the date of this prospectus supplement, you should rely on this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in the accompanying prospectus — the statement in the document having the later date modifies or supersedes the earlier statement. This prospectus supplement, the accompanying prospectus and the documents incorporated into each by reference include important information about us, the shares and warrants being offered and other information you should know before investing in shares of our common stock and warrants to purchase our common stock. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under “Where You Can Find Additional Information” on page 22 of the accompanying prospectus.

You should rely only on this prospectus supplement, the accompanying prospectus and the information incorporated or deemed to be incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the placement agent has not, authorized anyone to provide you with information that is in addition to, or different from, that contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the placement agent is not, offering to sell shares of our common stock or warrants to purchase our common stock in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than as of the date of this prospectus supplement or the accompanying prospectus, as the case may be, or in the case of the documents incorporated by reference, the date of such documents regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or any sale of shares of our common stock or warrants to purchase our common stock. Our business, financial condition, liquidity, results of operations, and prospects may have changed since those dates.

Unless otherwise noted, (1) the term “Atossa” refers to Atossa Genetics Inc., a Delaware corporation, (2) the terms “Atossa,” the “Company,” “we,” “us,” and “our,” refer to the ongoing business operations of Atossa and its subsidiary, whether conducted through Atossa or its subsidiary, (3) the term “common stock” refers to shares of Atossa’s common stock, (4) the term “warrants” refers to warrants to purchase shares of common stock and (5) the term “stockholder(s)” refers to the holders of common stock or securities exercisable for common stock.

S-1

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain, in addition to historical information, certain information, assumptions and discussions that may constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “*Securities Act*”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”). We have made these statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are subject to certain risks and uncertainties, which could cause actual results to differ materially from those projected or anticipated. Although we believe our assumptions underlying our forward-looking statements are reasonable as of the date of this prospectus, we cannot assure you that the forward-looking statements set out in this prospectus will prove to be accurate. We typically identify these forward-looking statements by the use of forward-looking words such as “expect,” “potential,” “continue,” “may,” “will,” “should,” “could,” “would,” “seek,” “intend,” “plan,” “estimate,” “anticipate” or the negative version of these words or other comparable words. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- our ability to successfully sell our products and services at currently expected prices or otherwise at prices acceptable to us;

- whether we will obtain in a timely manner clearance from the Food and Drug Administration to sell, market and distribute our MASCT System, which we also refer to as the ForeCYTE Breast Aspirator, and ForeCYTE Test;

- our ability to successfully re-launch our ForeCYTE Breast Aspirator and ForeCYTE Test;

- the estimated costs associated with our product recall;

- our ability to successfully develop and commercialize new tests, tools and technologies currently in development and in the time frames currently expected;

- our ability to maintain our business relationships, including with our distributors, suppliers and customers, while we are undergoing the recall we commenced in October 2013 and while we seek additional regulatory clearance to market, sell and distribute our ForeCYTE Breast Aspirator and ForeCYTE Test;

- our ability to engage third-party suppliers to manufacture the ForeCYTE Breast Aspirator, Microcatheter System, other devices under development and their components at quantities and costs acceptable to us;

- our ability to satisfy ongoing FDA requirements for the ForeCYTE Breast Aspirator, ForeCYTE Test and Microcatheter System and to obtain regulatory approvals for our other products and services in development,

including our ability to timely and adequately respond to the warning letter we received from the FDA on February 21, 2013 and any issues resulting therefrom;

our ability to defend the securities class action law suit filed against us on October 10, 2013, and other similar complaints that may be brought in the future, in a timely manner and within the coverage, scope and limits of our insurance policies;

the benefits and clinical accuracy of the ForeCYTE and ArgusCYTE tests and whether any product or service that we commercialize is safer or more effective than competing products and services;

our ability to establish and maintain intellectual property rights covering our products and services;

the willingness of health insurance companies, including those who are members of the MultiPlan, FedMed and HealthSmart networks, and other third-party payors to approve our products and services for coverage and reimbursement;

our ability to establish and maintain an independent sales representative force, including with our current and future distributors and their sub-distributors, to market our products and services that we may develop, both regionally and nationally;

our expectations regarding, and our ability to satisfy, federal, state and foreign regulatory requirements;

the accuracy of our estimates of the size and characteristics of the markets that our products and services may address;

our expectations as to future financial performance, expense levels and liquidity sources;

our ability to attract and retain key personnel; and

our ability to sell additional shares of our common stock to Aspire Capital under the terms of our purchase agreement with them.

This prospectus also contains estimates and other statistical data provided by independent parties and by us relating to market size and growth and other industry data. These and other forward-looking statements made in this prospectus are presented as of the date on which the statements are made. We have included important factors in the cautionary statements included in this prospectus, particularly in the section entitled “Risk Factors,” that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any new information, future events or circumstances that may affect our business after the date of this prospectus. Except as required by law, we do not intend to update any forward-looking statements after the date on which the statement is made, whether as a result of new information, future events or circumstances or otherwise.

S-3

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information appearing elsewhere or incorporated by reference in this prospectus supplement and accompanying prospectus and may not contain all of the information that is important to you. This prospectus supplement and the accompanying prospectus include or incorporate by reference information about the common stock and warrants we are offering as well as information regarding our business and detailed financial data. You should read this prospectus supplement and the accompanying prospectus in their entirety, including the information incorporated by reference.

Overview

We are a healthcare company focused on breast health. We are developing a suite of tests and medical devices, laboratory developed procedures and services (LDT and/or in vitro diagnostics) that address each of the four stages of the breast health care path: the cytological analysis of cells in nipple aspirate fluid, or NAF; the cytological analysis of cells in ductal lavage fluid collected from each individual breast duct with manual breast duct microcatheters; the profiling of newly diagnosed breast cancers through the determination of gene expression profiles in formalin-fixed paraffin embedded breast cancer biopsy tissue; and the monitoring of breast cancer survivors for pre-clinical recurrence through a blood test for circulating tumor cells. We also have a therapeutic program to provide targeted, localized treatment of cancerous and pre-cancerous conditions through our patented microcatheters. All of our products and services are currently under development and are awaiting additional regulatory clearances prior to marketing and commercialization. Our products and services under development include:

ForeCYTE Breast Aspirator: a medical device for the collection of NAF specimens that are then processed using cytological testing procedures in a laboratory, which may include our wholly-owned CLIA-certified laboratory, National Reference Laboratory for Breast Health, Inc., or the NRLBH. The ForeCYTE Breast Aspirator and any related cytology are not intended to be used to diagnose breast cancer or to serve as a replacement for mammography. We are currently seeking 510(k) clearances from the FDA for the ForeCYTE Breast Aspirator, which we anticipate receiving in the first quarter of 2014. Upon receiving the 510(k) clearances, we intend to re-launch the ForeCYTE Breast Aspirator.

FullCYTE Breast Health Test: a test system for women identified by their physician as being at high risk for breast cancer. The test is designed for a surgeon to use our patented Class II microcatheter medical devices to collect NAF specimens from individual breast ducts which are then analyzed using cytological testing procedures at the NRLBH. We plan to complete additional validation studies and regulatory clearance of our manufacturing procedures and processes for this test in 2014 and to launch the test in the second half of 2014.

NextCYTE Breast Cancer Test: a test for women newly diagnosed by their physician as having breast cancer that is a qualitative in vitro diagnostic test service, performed in a single laboratory, using the gene expression profile of formalin-fixed, paraffin embedded breast cancer tissue samples to assess a patient's risk for distant metastasis. It uses advanced microarray expression technologies to quantify and analyze the entire tumor genetic transcriptome, which represents all genes that are being actively expressed within the tumor. This test is in the validation phase and after receiving FDA regulatory clearance we anticipate launching it in the second half of 2014.

ArgusCYTE Breast Health Test: a blood sample test for breast cancer survivors which provides information on the presence of circulating tumor cells. We completed the development of this test and conducted a limited trial launch in 2012. We are completing enhancements to this test and, after receiving any necessary additional FDA clearances, we plan to re-launch it in mid-2014.

Therapeutic Program: we are also developing our patented microcatheters for the delivery of pharmaceutical formulations directly into the milk ducts. We plan to initially target pre-cancerous lesions and ductal carcinoma in situ, or DCIS, a condition diagnosed in more than 65,000 patients each year. By using this localized delivery method, patients are expected to receive high local concentrations of these drugs at the site of the pre-cancerous lesions or DCIS potentially promoting efficacy of the treatment while limiting systemic exposure, which has the potential to lower the overall toxicity of these treatments. This program has not been approved by the FDA. We plan to identify a partner for the clinical development of the pharmaceutical to be used with our device in the first half of 2014.

Our laboratory, the NRLBH, was established in part to receive and process NAF samples collected with our ForeCYTE Breast Aspirator. The NRLBH has been certified pursuant to the Clinical Laboratory Improvement Amendments, or CLIA. CLIA certification is legally required to receive reimbursement from federal or state medical benefit programs, like Medicare and Medicaid, and is a practical requirement for most third-party insurance benefit programs. Our CLIA-certified laboratory, which is permitted to accept samples from all 50 states under its CLIA certification, its state licenses, or, in New York under recognized exemption provisions while its license application is pending, examines the specimens by cytological analysis.

Our Diagnostic Tools

In September 2012, we acquired the assets of Acueity Healthcare, Inc., or Acueity. The assets we acquired from Acueity included 35 issued patents (18 issued in the U.S. and 17 issued in foreign countries) and 41 patent applications (32 in the U.S. and 9 in foreign countries), six 510(k) FDA marketing authorizations related to the manufacturing, use, and sale of the Viaduct Miniscope and accessories, the Manoa Breast Biopsy system, the Excisor Biotome, the Acueity Medical Light Source, the Viaduct Microendoscope and accessories, and cash in the amount of \$400,000. The microendoscopes are less than 0.9 mm outside diameter and can be inserted into a milk duct. This permits a physician to pass a microendoscope into the milk duct system of the breast and view the duct system via fiberoptic video images. Abnormalities that are visualized can then be biopsied from inside the duct with the biopsy tools that are inserted adjacent to the microendoscope. The patents relate to intraductal diagnostic and therapeutic devices and methods of use. We did not, however, acquire an inventory of these diagnostic tools, manufacturing capabilities or any personnel to market and sell the tools. We anticipate that we will not allocate human and financial resources to further develop and ultimately commercialize these medical devices until we are able to launch our four diagnostic tests in the United States. We intend to complete the steps necessary to begin marketing and selling these tools, such as re-establishment of the supply chain of component parts, securing manufacturers, performing test builds and commercial scale manufacturing, in the first half of 2014. This asset purchase is not expected to have an impact on the development and commercialization timetables of our existing product lines. We cannot, however, provide any assurances that delays related to the launch of our four diagnostic tests, independent of this asset purchase, would not delay the expected development of these diagnostic tools or that we will ultimately be successful selling these tools.

Intraductal Treatment Research

Our Intraductal Treatment Research Program comprises our patented microcatheter-delivery technology and our patented pharmaceutical formulations for the intraductal treatment of breast pre-cancerous changes and DCIS. The method uses our Mammary Ductal Microcatheter System, invented by Dr. Susan Love, President of the Dr. Susan Love Research Foundation, and her colleagues, and acquired by us, to administer proprietary pharmaceutical formulations into milk ducts that display pre-cancerous changes or DCIS with high local concentrations of the drugs in order to promote greater efficacy and limited systemic exposure, potentially lowering the overall toxicity of the treatment.

An October 2011 peer-reviewed paper published in *Science Translational Medicine* documented a study conducted at the Johns Hopkins Medical School demonstrating the prevention of breast cancer in rats with intraductal non-systemic chemotherapy, and a proof-of-principle Phase 1 clinical trial involving 17 women with breast cancer who subsequently received surgery. An accompanying editorial commented that “intraductal treatment could be especially useful for women with premalignant lesions or those at high risk of developing breast cancer, thus drastically improving upon their other, less attractive options of breast-removal surgery or surveillance (termed ‘watch and wait’).”

In a December 2012 peer-reviewed paper published in *Cancer Prevention Research*, Dr. Susan Love and her colleagues report a Phase I clinical trial to show the safety and feasibility of intraductal administration of chemotherapy drugs into multiple ducts within one breast in women awaiting mastectomy for treatment of invasive cancer. Thirty subjects were enrolled in this dose escalation study conducted at a single center in Beijing, China. Under local anesthetic, one of two chemotherapy drugs, carboplatin or pegylated liposomal doxorubicin, or PLD, was administered into five to eight ducts at three dose levels. Pharmacokinetic analysis has shown that carboplatin was rapidly absorbed into the bloodstream, whereas PLD, though more erratic, was absorbed after a delay. Pathologic analysis showed marked effects on breast duct epithelium in ducts treated with either drug compared with untreated ducts. The investigators concluded the study showed the safety and feasibility of intraductal administration of chemotherapy into multiple ducts for the purpose of breast cancer prevention and that this was an important step toward implementation of this strategy as a “chemical mastectomy,” potentially eliminating the need for surgery.

S-5

We intend to build on these academic studies with a research program targeted initially as neoadjuvant therapy in DCIS and to secure a partner in the first half of 2014 for the continued development of this program. We have not begun the process of applying for FDA approval of this program.

Current Operations

We launched our commercial operations in late 2011. In 2012 we initiated and completed the field experience trial of our first two tests, the ForeCYTE test and the ArgusCYTE test. In January 2013, we announced the national launch of the ForeCYTE Test. On April 30, 2013, we entered into a Distribution and Marketing Services Agreement with Millennium Medical Devices LLC, pursuant to which Millennium will market and distribute the ForeCYTE breast health test kits in New York City and Northern New Jersey. In May 2013, we entered into a distribution agreement with Fisher Healthcare, a division of Fisher Scientific Company, LLC, and in September 2013 we entered into a distribution agreement with McKesson Medical Surgical.

Our Voluntary Product Recall

On October 4, 2013 we initiated a voluntary recall to remove the ForeCYTE Breast Health Test and the MASCT device from the market. This voluntary recall includes the MASCT System Kit and Patient Sample Kit. The purpose of this voluntary recall is to address concerns raised by the FDA in a Warning Letter received by Atossa in February 2013. In that Warning Letter, the FDA raised concerns about (1) the current instructions for use, or IFU; (2) certain promotional claims used to market these devices; and (3) the need for FDA clearance for certain changes made to the NAF specimen collection process identified in the current IFU. We are in the process of removing existing product from the market. Virtually all of our revenue has been generated from the ForeCYTE Breast Health Test and the MASCT device. We do not expect to generate any significant revenue during the recall and while we are seeking additional regulatory clearance for the ForeCYTE Breast Aspirator.

The MASCT device was originally cleared by the FDA for use as a sample collection device, with the provision that the fluid collected using this device can be used to determine and/or differentiate between normal, pre-cancerous, and cancerous cells. The MASCT device has not been cleared by the FDA for the screening or diagnosis of breast cancer. In addition, the ForeCYTE Breast Health Test has not been cleared or approved by the FDA for any indication as the company considered this to be a Laboratory Developed Test – or within a class of tests that has historically not required a 510(k) application. The ForeCYTE Breast Health Test and the MASCT device are not intended to serve as a replacement for screening mammograms, diagnostic imaging tests, or biopsies. Patients are instructed to follow the recommendations and instructions of their physician with respect to breast cancer screening and diagnosis.

To date, we are unaware of any adverse incidents or injuries associated with the use of the ForeCYTE Breast Health test and the MASCT device or the processing method identified in the latest version of the IFU. Additionally, we are unaware of any risk to health or injury for clinicians or the patient population that have used these devices. However, there is a risk that these devices may produce false positive or false negative results. Although not cleared or intended for this use, if these devices are used as a substitute for recommended screening or diagnosis of breast cancer, the FDA is concerned that patients may choose to forgo recommended mammograms and necessary biopsies.

We are working with the FDA on this matter and this voluntary recall. We have notified distributors and customers by certified mail and we are arranging for the return of all recalled products. As of January 9, 2014, approximately 74% of the MASCT pumps and 95% of the MASCT patient collection kits have been returned to our processing center. We also plan to prepare a new premarket notification or 510(k) application for submission to the FDA that covers the collection, preparation, and processing of NAF specimens at our laboratory and includes the spray method of fixing specimens to the collection membrane. However, we cannot market or distribute the modified product in the United States unless or until the new 510(k) is cleared by the FDA.

S-6

To ensure that the 510(k) includes the information that FDA feels is appropriate, we attended a pre-submission meeting with the FDA on November 14, 2013. The 510(k) was filed with the FDA on December 24, 2013. We hope that the FDA will complete their review of our submission within 90 days of submission; however, we cannot predict if they will ask us for additional information or otherwise complete their review within the 90 days.

We have recorded a loss contingency as of September 30, 2013 of \$402,840 related to the estimated costs of the recall, including the estimated costs of pursuing the additional 510(k) clearance. The recall and 510(k) process may take longer than expected and we may incur costs that we have not anticipated. Accordingly, the actual amount of the loss contingency may be higher than we currently expect.

If and when we are able to re-launch our ForeCYTE Test, we will incur additional sales and marketing expenses. If we re-launch our ForeCYTE Test, we will need to revise our sales and marketing tools and continue hiring direct sales employees in an effort to build a regional, and ultimately national, sales force. We also expect to continue to hire clinical consultants to help healthcare providers begin to use our ForeCYTE Test.

From our inception (April 30, 2009) through September 30, 2013, 357 physicians have enrolled to provide the ForeCYTE Test and as of that date we have received, processed, and reported the results to physicians from 2,744 NAF samples processed and reported with our ForeCYTE Test (representing 1,372 patients) and 41 ArgusCYTE samples. From inception through September 30, 2013, we have generated \$1,068,687 in product and service revenue. We incurred net losses of \$3,501,045 and \$8,026,984 for the three months and nine months ended September 30, 2013 and \$17,758,892 since inception. As of September 30, 2013, we had an accumulated deficit of approximately \$17,758,892. We have not yet established an ongoing source of revenue sufficient to cover our operating costs and allow us to continue as a going concern. Our ability to continue as a going concern is dependent on obtaining adequate capital to fund operating losses until we become profitable. We plan to obtain additional capital resources by selling our equity securities, selling the ForeCYTE test kits and generating laboratory service revenue from our tests, and borrowing from stockholders or others when needed. However, we cannot assure you that we will be successful in accomplishing any of these plans and, if we are unable to obtain adequate capital, we could be forced to cease operations.

Recent Developments

On March 27, 2013 we entered into a stock purchase agreement with Aspire Capital Fund, LLC, and pursuant to that agreement we issued a total of 2,233,333 shares of common stock to Aspire Capital, receiving aggregate gross proceeds of \$11,303,745. That stock purchase agreement was terminated on November 8, 2013 and on that date we entered into a new stock purchase agreement with Aspire Capital Fund, LLC. The new stock purchase agreement provides that, upon the terms and subject to the conditions and limitations set forth therein, Aspire Capital is committed to purchase up to an aggregate of \$25 million of shares of our common stock over the 30-month term of the agreement. A new registration statement was filed with and declared effective by the Securities and Exchange

Commission, or SEC, related to the new agreement with Aspire. In connection with the offering contemplated by this prospectus supplement, we have agreed not to sell any additional shares of common stock to Aspire Capital for 60 days after the closing of the offering if we receive aggregate gross proceeds of at least \$5 million, or 120 days if we receive aggregate gross proceeds of at least \$10 million; however, we are not restricted from selling \$1 million of common stock to Aspire Capital pursuant to the agreement with them upon the achievement of the second milestone set forth in the Aspire Capital agreement, which is the clearance by the FDA of our 510(k) notification for our ForeCYTE Breast Aspirator.

On October 10, 2013, a putative securities class action complaint was filed in the United States District Court for the Western District of Washington against us, certain of our directors and officers and the underwriter of our November 2012 initial public offering. The complaint alleges that all defendants violated Sections 11 and 12(a)(2), and that we and certain of our directors and officers violated Section 15 of the Securities Act by making false and misleading statements and omissions in the offering's registration statement, and that we and certain of our directors and officers violated Sections 10(b) and 20A of the Exchange Act and SEC Rule 10b-5 promulgated thereunder by making false and misleading statements and omissions in the registration statement and in certain of our subsequent press releases and SEC filings with respect to our NAF specimen collection process, our ForeCYTE Breast Health Test and our MASCT device. This action seeks, on behalf of persons who purchased our common stock between November 8, 2012 and October 4, 2013, inclusive, damages of an unspecified amount.

We believe this complaint is without merit and plan to defend ourselves vigorously. Failure by us to obtain a favorable resolution of the claims set forth in the complaint could have a material adverse effect on our business, results of operations and financial condition. Currently, the amount of such material adverse effect cannot be reasonably estimated, and no provision or liability has been recorded for these claims as of September 30, 2013. The costs associated with defending and resolving the complaint and ultimate outcome cannot be predicted. These matters are subject to inherent uncertainties and the actual cost, as well as the distraction from the conduct of our business, will depend upon many unknown factors and management's view of these may change in the future.

Risk Factors

Our business is subject to numerous risks as discussed more fully in the section entitled "Risk Factors" beginning on page S-11. Principal risks of our business include, but are not limited to, the following:

our existing capital resources may only be sufficient for the next six to ten months and, as a result, we may face issues related to a lack of funding;

if we are not successful, or are delayed, in obtaining a new 510(k) clearance from the FDA for our ForeCYTE Breast Aspirator, our operations will be significantly and adversely affected;

the scope of any 510(k) clearance that we might receive from the FDA covering our ForeCYTE Breast Aspirator could be more limited than we expect, potentially limiting our ability to market the test;

our voluntary recall and market withdrawal of the MASCT System and ForeCYTE Test, and any future recalls and/or product withdrawals, will significantly and adversely affect our business, prospects, financial condition and results of operations;

we will need significant additional capital to execute our business strategy as currently contemplated and additional capital may not be available from Aspire Capital or otherwise;

we have a history of operating losses and expect to incur losses for the foreseeable future and may never achieve profitability;

our business may be affected by legal proceedings;

the products and services that we have developed or may develop may never achieve significant commercial market acceptance;

additional shares becoming available for sale on the market, for example because of the sale and subsequent resale of shares we may sell to Aspire Capital or other sources of capital, could adversely affect our stock price and could dilute our existing stockholders; and

if our patents do not adequately protect our products, others could compete with us more directly, which would adversely affect our business.

Implications of being an Emerging Growth Company

As a company with less than \$1 billion in revenue during our last fiscal year, we qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- Only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure.

- Reduced disclosure about our executive compensation arrangements.

- Not having to obtain non-binding advisory votes on executive compensation or golden parachute arrangements.

- Exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company if we have more than \$1 billion in annual revenue, we have more than \$700 million in market value of our stock held by non-affiliates, or we issue more than \$1 billion of non-convertible debt over a three-year period. We may choose to take advantage of some but not all of these reduced burdens. We have taken advantage of these reduced reporting burdens in this prospectus, and the information that we provide may be different than what you might get from other public companies in which you hold stock.

Corporate Information

We were incorporated in Delaware in April 2009. Our principal executive offices are located at 1616 Eastlake Ave. East, Suite 510, Seattle, Washington 98102 and our telephone number is (800) 351-3902. Our corporate website is located at www.atossagenetics.com and our laboratory website is located at www.nrlbh.com. Information contained on, or that can be accessed through, our websites is not a part of this prospectus.

MASCT is our registered trademark and Oxy-MASCT and our name and logo are our trademarks. ForeCYTE, FullCYTE, NextCYTE, and ArgusCYTE are our service marks. This prospectus also includes additional trademarks, trade names and service marks of third parties, which are the property of their respective owners.

THE OFFERING

Units offered by us	Up to Units. Each Unit consists of one share of common stock and one warrant to purchase .20 of a share of common stock. The shares of common stock and warrants offered hereby are immediately separable and will be issued separately.
Warrants offered by us	Each warrant will have an exercise price of \$ per share, will be immediately exercisable on the date of issuance and will expire five years from the date of issuance. For additional information, see “Description of the Securities” on page S-16 of this prospectus supplement. This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the warrants.
Common stock to be outstanding immediately after this offering	Shares
Use of proceeds	We intend to use the net proceeds of this offering for general corporate purposes, which include, but are not limited to, funding our ongoing and future development and re-launch of our ForeCYTE Breast Aspirator when it receives regulatory clearance, funding the development of our other products in the pipeline including our FullCYTE Breast Health Test, NextCYTE Breast Cancer Test, ArgusCYTE Breast Health Test, our planned intra-ductal treatment program, and for general and administrative expenses. A portion of the net proceeds may also be used for the acquisition of businesses, products and technologies that are complementary to ours, or for other strategic purposes.
Risk Factors	See “Risk Factors” beginning on page S-11 of this prospectus supplement and page 5 of the accompanying prospectus for a discussion of factors that you should read and consider before investing in our securities.
NASDAQ Capital Market symbol	Our common stock is listed on the NASDAQ Capital Market under the symbol “ATOS”.

The number of shares of common stock shown above to be outstanding after this offering is based on 17,444,824 shares outstanding as of September 30, 2013, and excludes the shares of common stock issuable upon exercise of the warrants being offered by us in this offering and excludes the following as of September 30, 2013:

2,246,651 shares of our common stock subject to options outstanding having a weighted average exercise price of \$4.53 per share;

Edgar Filing: ATOSSA GENETICS INC - Form 424B5

471,624 shares of our common stock that have been reserved for issuance in connection with future grants under our 2010 Stock Option and Incentive Plan, as amended;

4,778,050 shares of our common stock that have been reserved for issuance upon exercise of outstanding warrants having a weighted average exercise price of \$1.83 per share, of which 4,332,050 warrants have an exercise price of \$1.60, 325,000 warrants have an exercise price of \$5.00, 60,000 warrants have an exercise price of \$4.24, 58,500 warrants have an exercise price of \$5.80, and 2,500 warrants have an exercise price of \$12.43; and

875,000 shares of common stock issued to Aspire Capital in connection with the agreement we entered into with them on November 8, 2013 and in connection with the automatic sale of common stock to Aspire Capital when we filed our 510(k) notification with the FDA related to the ForeCYTE Breast Aspirator.

S-10

RISK FACTORS

We are a development-stage company and we have accrued net losses annually since inception. Before making an investment decision, you should carefully consider the risks described below and in the sections entitled “Risk Factors” in the prospectus to which this prospectus supplement forms a part, as well as our most recent Annual Report on Form 10-K or Quarterly Report on Form 10-Q, as filed with the Securities and Exchange Commission, which are incorporated herein by reference in their entirety, as well any amendment or updates to our risk factors reflected in subsequent filings with the Securities and Exchange Commission, including any applicable prospectus supplement. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our common stock could decline due to any of these risks, and you may lose all or part of your investment. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned elsewhere in this prospectus supplement.

Risks Related to This Offering

Management will have broad discretion as to the use of the net proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion as to the application of the net proceeds and could use them for purposes other than those contemplated at the time of this offering. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use the net proceeds for corporate purposes that may not increase our market value.

Investors in this offering will experience immediate and substantial dilution.

The public offering price of the securities offered pursuant to this prospectus supplement may be substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase Units in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the Units. If the holders of outstanding options or other securities convertible into our common stock exercise those options or other such securities at prices below the public offering price, you will incur further dilution. See “Dilution” on page S-13 of this prospectus supplement for a more detailed discussion of the dilution you will incur in this offering.

The warrants are a new issue of securities with no established trading market.

The warrants are a new issue of securities with no established trading market. The warrants will not be listed on any securities exchange or quotation system. A trading market for the warrants may not develop and even if a market develops it may not provide meaningful liquidity. The absence of a trading market or liquidity for the warrants may adversely affect their value.

Future sales of substantial amounts of our common stock could adversely affect the market price of our common stock.

Future sales of substantial amounts of our common stock, or securities convertible or exchangeable into shares of our common stock, into the public market, including shares of our common stock issued upon exercise of options and warrants, or perceptions that those sales could occur, could adversely affect the prevailing market price of our common stock and our ability to raise capital in the future. We also may offer and sell up to an aggregate of \$25 million of shares of our common stock pursuant to a purchase agreement entered into with Aspire Capital Fund, LLC on November 8, 2013. As of January 22, 2014, we had \$24 million remaining available for sale under the purchase agreement with Aspire Capital.

USE OF PROCEEDS

We estimate that the net proceeds from this offering, based on an offering price of \$ per Unit, after deducting placement agent fees and offering expenses of approximately \$ and excluding the proceeds, if any, from any exercise of the warrants by the holder thereof, will be approximately \$ million, assuming that we sell the maximum number of Units we are offering pursuant to this prospectus supplement. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual number of units sold, placement agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amount set forth above.

We intend to use the net proceeds of this offering (including any resulting from the exercise of warrants, if any) for general corporate purposes, which include, but are not limited to, funding our ongoing and future development and re-launch of our ForeCYTE Breast Aspirator when it receives regulatory clearance, funding the development of our other products in the pipeline including our FullCYTE Breast Health Test, NextCYTE Breast Cancer Test, ArgusCYTE Breast Health Test, our planned intra-ductal treatment program, and for general and administrative expenses. A portion of the net proceeds may also be used for the acquisition of businesses, products and technologies that are complementary to ours, or for other strategic purposes. Although we have no specific agreements, commitments or understandings with respect to any acquisition, we evaluate acquisition opportunities and engage in related discussions with other companies from time to time.

DILUTION

If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the public offering price per Unit and the adjusted net tangible book value per share of our common stock after this offering.

The net tangible book value of our common stock as of September 30, 2013, was approximately \$7.1 million, or approximately \$0.41 per share. Net tangible book value per share represents the amount of our total tangible assets, excluding goodwill and intangible assets, less total liabilities, divided by the total number of shares of our common stock outstanding.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers for each Unit in this offering and the net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of up to Units offered by this prospectus supplement at an offering price of \$ per Unit in connection with this offering and after deducting the estimated placement agent fees and offering expenses and excluding the proceeds, if any, from the exercise of the warrants issued pursuant to this offering, our pro forma net tangible book value as of September 30, 2013 would have been approximately \$ million or approximately \$ per share. This represents an immediate increase in net tangible book value of approximately \$ per share to our existing stockholders and an immediate dilution in pro forma net tangible book value of approximately \$ per share to purchasers of Units in this offering, as illustrated by the following table:

Offering price per Unit	\$
Net tangible book value per share as of September 30, 2013	\$
Increase per share attributable to the offering	\$
As adjusted net tangible book value per share after this offering	\$
Dilution per share to new investors	\$

The discussion of dilution, and the table quantifying it, assumes no exercise of any outstanding options or warrants or the issuance of other potentially dilutive securities. The exercise of potentially dilutive securities having an exercise price less than the offering price would increase the dilutive effect to new investors.

The number of shares of common stock shown above to be outstanding after this offering is based on 17,444,824 shares outstanding as of September 30, 2013, and excludes the shares of common stock issuable upon exercise of the

warrants being offered by us in this offering and excludes the following as of September 30, 2013:

2,246,651 shares of our common stock subject to options outstanding having a weighted average exercise price of \$4.53 per share;

471,624 shares of our common stock that have been reserved for issuance in connection with future grants under our 2010 Stock Option and Incentive Plan, as amended;

4,778,050 shares of our common stock that have been reserved for issuance upon exercise of outstanding warrants having a weighted average exercise price of \$1.83 per share, of which 4,332,050 warrants have an exercise price of \$1.60, 325,000 warrants have an exercise price of \$5.00, 60,000 warrants have an exercise price of \$4.24, 58,500 warrants have an exercise price of \$5.80, and 2,500 warrants have an exercise price of \$12.43; and

875,000 shares of common stock issued to Aspire Capital in connection with the agreement we entered into with them on November 8, 2013 and in connection with the automatic sale of common stock to Aspire Capital when we filed our 510(k) notification with the FDA related to the ForeCYTE Breast Aspirator.

PLAN OF DISTRIBUTION

Pursuant to a placement agent agreement between us and Dawson James Securities, Inc., we have engaged Dawson James Securities, Inc. as our exclusive placement agent to solicit offers to purchase the Units offered by this prospectus supplement. The placement agent is not purchasing or selling any of the Units we are offering, and it is not required to arrange the purchase or sale of any specific number of Units or dollar amount, but the placement agent has agreed to use its “reasonable best efforts” to arrange for the sale of the Units offered by this prospectus supplement. The placement agent may engage one or more sub-placement agents or selected dealers to assist with this offering.

The placement agent proposes to arrange for the sale of the Units we are offering pursuant to this prospectus supplement to a number of investors through its brokerage relationships. All of the Units will be sold at the same price. The price will be established following negotiations with prospective investors and with reference to the prevailing market price of our common stock, recent trends in such price and other factors. It is possible that not all of the Units we are offering pursuant to this prospectus supplement will be sold, in which case our net proceeds would be reduced.

In connection with this offering, the placement agent may distribute this prospectus supplement and the accompanying prospectus electronically.

We have retained Dawson James Securities, Inc. to act as placement agent in connection with the Units offered by this prospectus supplement. We have agreed to pay the placement agent a placement agent fee equal to 7% of the gross proceeds from this offering. The per Unit placement agent fees are set forth in the table below, which assumes that we sell all of the Units we are offering. We will also issue to the placement agent a number of warrants to purchase common stock equal to 3% of the aggregate number of shares issued in this offering. Such warrants will be identical to the warrants issued to the investors, except that (i) the exercise price will be \$ (125% of the public offering price per Unit) and (ii) the expiration date will be November 29, 2018 (five years from the effective date of our registration statement). As required by FINRA Rule 5110(g)(1), neither the placement agent warrants nor any securities issued upon exercise of the placement agent warrants may be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of such securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sale of this offering, except the transfer of any security:

- by operation of law or by reason of our reorganization;

-

to any FINRA member firm participating in the offering and the officers or partners thereof, if all of the securities so transferred remain subject to the lock-up restriction described above for the remainder of the time period;

- if the aggregate amount of our securities held by the placement agent or related person do not exceed 1% of the securities being offered;

that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no

- participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or

- the exercise or conversion of any security, if all of the securities received remain subject to the lock-up restriction set forth above for the remainder of the time period.

The placement agent agreement provides that, at the request of the placement agent, the compensation of the placement agent may be reduced to comply with FINRA rules. The Company will deliver to the placement agent the shares of common stock and warrants, and such securities will be distributed by the placement agent to the respective investors. Based on the number of Units placed by the Placement Agent and the number of Units placed by the Company, we expect to pay the following per Unit and aggregate placement fees:

Per Unit \$
Total \$

We will also reimburse the placement agent for its accountable expenses in an amount up to \$50,000, subject to compliance with FINRA Rule 5110(f)(2)(D). We estimate the total expenses of this offering that will be payable by us, excluding the placement agent fees, will be approximately \$50,000. After deducting certain fees due to the placement agent and our estimated offering expenses, we expect the net proceeds from this offering will be approximately \$.

We have agreed to indemnify the placement agent against certain liabilities in connection with this offering. We have also agreed to reimburse the placement agent for certain expenses (including the reasonable fees and expenses of counsel) incurred by the placement agent in connection with defending any claim, action, suit or proceeding in respect of such liabilities.

The placement agent agreement will be included as an exhibit to our Current Report on Form 8-K that we will file with the SEC in connection with this offering.

The placement agent and its affiliates may in the future provide certain commercial banking, financial advisory or investment banking services for us for which it has received and may in the future receive fees, but there are no current arrangements between us. The placement agent and its affiliates may also from time to time in the future engage in transactions with us and perform services for us in the ordinary course of its business, but there are no current arrangements between us.

S-15

DESCRIPTION OF THE SECURITIES

Common Stock

The material terms and provisions of our common stock are described in our registration statement on Form 8-A (Registration No. 001-35610), filed on July 24, 2012, including any amendments or reports filed for the purpose of updating such description.

Warrants

The following is a brief summary of certain terms and conditions of the warrants and is subject in all respects to the provisions contained in the warrants. This summary is subject to and qualified in its entirety by the form of warrant, which will be filed as an exhibit to a Current Report on Form 8-K to be filed by us with the SEC in connection with this offering. You should review a copy of the form of warrant for a complete description of the terms and conditions applicable to the warrants.

Form. The warrants will be issued in book entry form pursuant to the terms of a warrant agency agreement between us and VStock Transfer, LLC. The warrants will be electronically delivered to the placement agent on the date of closing for distribution to investors. You should review a copy of the form of warrant agency agreement, which will be filed with the Securities and Exchange Commission by us as an exhibit to a Current Report on Form 8-K in connection with this offering within the time period required by such form, for a complete description of the terms and conditions applicable to the warrants.

Exercisability. The warrants are exercisable at any time after their issuance, expected to be _____, 2014, and at any time up to the date that is five years after their original issuance. The warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the shares of common stock underlying the warrants under the Securities Act of 1933, as amended, or the Securities Act, is effective and available for the issuance of such shares, or an exemption from registration under the Securities Act is available for the issuance of such shares, by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance of the shares of common stock underlying the warrants under the Securities Act is not then effective or available, the holder may only exercise the warrant through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. No fractional shares of common stock will be issued in connection with the exercise

of a warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price.

Exercise Limitation. A holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% of the number of shares of our stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon at least 61 days' prior notice from the holder to us.

Exercise Price. The exercise price per share of common stock purchasable upon exercise of the warrants is \$ _____ per share of common stock. The exercise price is subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distributions of assets, including cash, stock or other property to our stockholders.

Transferability. Subject to applicable laws, the warrants may be offered for sale, sold, transferred or assigned without our consent. There is currently no trading market for the warrants and a trading market may not develop.

Exchange Listing. We do not plan on applying to list the warrants on the NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Call Feature. If, after the issuance date of the warrants, (i) the volume-weighted average price of the Company's common stock for each of 20 consecutive trading days exceeds \$ _____, which equals two times the exercise price (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the issuance date of the warrants), (ii) the daily trading volume for each trading day during such 20-day period exceeds 250,000 shares of common stock (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the issuance date of the warrants) and (iii) the holder of the warrant is not in possession of any information that constitutes, or might constitute, material non-public information which was provided by the Company, then the Company may, within one trading day of the end of such 20-day period, call for cancellation of all or any portion of the warrant for which a notice of exercise has not yet been delivered for consideration equal to \$0.001 per share underlying the warrant (the "**Call**"). To exercise this right, the Company must deliver to the holders of the warrants an irrevocable written notice (a "**Call Notice**"), indicating therein the unexercised portion of the respective warrants to which such notice applies. If the conditions set forth below for such Call are satisfied from the period from the date of the Call Notice through and including the Call Date (as defined below), then any portion of a warrant subject to a Call Notice for which an exercise notice has not been received by the Call Date will be cancelled at 6:30 p.m. (New York City time) on the tenth trading day after the date the Call Notice is received by the Holder (such date and time, the "**Call Date**"). The Company may not deliver a Call Notice or require the cancellation of any warrant (and any such Call Notice shall be void), unless, from the beginning of the 20-day period through the Call Date, (1) the Company shall have honored in accordance with the terms of the warrants all exercise notices delivered by 6:30 p.m. (New York City time) on the Call Date, (2) the Registration Statement shall be effective as to all shares underlying the warrants (the "**Warrant Shares**") and the prospectus thereunder available for use by the holder for the resale of all such Warrant Shares, (3) the common stock shall be listed or quoted for trading on the applicable trading market, (4) there

is a sufficient number of authorized shares of common stock for issuance of all Warrant Shares, and (5) the issuance of the shares shall not cause a breach of any provision of Section 2(e) of the warrant. The Company's right to call the warrants shall be exercised ratably among the holders of the warrants based on each holder's initial purchase of warrants.

S-16

Fundamental Transactions. In the event of a fundamental transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the holders of the warrants will be entitled to receive, upon any subsequent exercise of the warrants and for each share of our common stock that would have been issuable upon such exercise immediately prior to the occurrence of a fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration receivable as a result of such fundamental transaction by a holder of the number of shares of common stock for which the warrants are exercisable immediately prior to such fundamental transaction.

Rights as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our common stock, the holder of a warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

Listing; Transfer Agent

Our shares of common stock are traded on the NASDAQ Capital Market under the symbol "ATOS." The transfer agent for our shares of common stock and warrants to be issued in this offering is VStock Transfer, LLC, 77 Spruce Street, Suite 201, Cedarhurst, New York 11516 (Telephone: (212) 828-8436; Facsimile (646) 536-3179).

DIVIDEND POLICY

We have never declared or paid dividends on our common stock and do not anticipate paying any dividends on our common stock in the foreseeable future.

LEGAL MATTERS

Ropes & Gray LLP, San Francisco, California, will pass upon the validity of the common stock and warrants offered by this prospectus supplement and the accompanying prospectus. Ellenoff Grossman & Schole LLP, New York, New York is acting as counsel for the placement agent in connection with certain legal matters related to this offering.

EXPERTS

KCCW Accountancy Corp., an independent PCAOB registered public accounting firm, has audited the Company's consolidated balance sheets as of December 31, 2012 and 2011 and the related consolidated statements of operations, stockholders' equity, and cash flows for the years then ended and since inception (April 30, 2009), which are incorporated by reference in this prospectus. The consolidated financial statements are included in reliance on the report of KCCW Accountancy Corp., given their authority as experts in accounting and auditing.

S-17

PROSPECTUS

\$40,000,000

ATOSSA GENETICS INC.

Common Stock

Preferred Stock

Debt Securities

Warrants

We may offer and sell an indeterminate number of shares of our common stock, preferred stock, debt securities and warrants from time to time under this prospectus. We may offer these securities separately or together in combination with other securities registered by this prospectus. We will describe in a prospectus supplement the securities we are offering and selling, as well as the specific terms of the securities.

We may offer these securities in amounts, at prices and on terms determined at the time of offering. We may sell the securities directly to you, through agents we select, or through underwriters and dealers we select. If we use agents, underwriters or dealers to sell the securities, we will name them and describe their compensation in a prospectus supplement or sales agreement prospectus.

Our Common Stock is currently quoted on the NASDAQ Capital Market under the symbol "ATOS". On November 15, 2013, the last reported sale price per share of our Common Stock on the NASDAQ Capital Market was \$2.12.

Our principal executive offices are located at 1616 Eastlake Ave. East, Suite 510, Seattle, Washington 98102.

Investing in our securities involves risks. You should carefully consider the Risk Factors beginning on page 5 of this prospectus before you make an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is November 29, 2013

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a shelf registration process. Under the shelf registration process, we may offer shares of our common stock and preferred stock, various series of debt securities and warrants to purchase any of such securities with a total value of up to \$40,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement (which term includes, as applicable, the sales agreement prospectus filed with the registration statement of which this prospectus forms a part) that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

	Page
ABOUT THIS PROSPECTUS	1
NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT THE COMPANY	3
RISK FACTORS	5
USE OF PROCEEDS	5
RATIO OF EARNINGS TO FIXED CHARGES	5
PLAN OF DISTRIBUTION	5
DESCRIPTION OF SECURITIES TO BE REGISTERED	7
EXPERTS	22
LEGAL MATTERS	22
WHERE YOU CAN FIND ADDITIONAL INFORMATION	22
INFORMATION INCORPORATED BY REFERENCE	22

A prospectus supplement may include a discussion of risks or other special considerations applicable to us or the offered securities. A prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you must rely on the information in the prospectus supplement. Please carefully read both this prospectus and the applicable prospectus supplement in their entirety together with additional information described under the heading “Where You Can Find More Information” in this prospectus. This prospectus may not be used to offer or sell any securities unless accompanied by a prospectus supplement.

The registration statement containing this prospectus, including exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement can be read on the SEC’s website or at the SEC’s public reading room mentioned under the heading “Where You Can Find More Information” in this prospectus.

We have not authorized any broker-dealer, salesperson or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and the accompanying supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. This prospectus and the accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy securities, nor do this prospectus and the accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation. The information contained in this prospectus and the accompanying prospectus supplement speaks only as of the date set forth on the cover page and may not reflect subsequent changes in our business, financial condition, results of operations and prospects even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain, in addition to historical information, certain information, assumptions and discussions that may constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “*Securities Act*”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”). We have made these statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements are subject to certain risks and uncertainties, which could cause actual results to differ materially from those projected or anticipated. Although we believe our assumptions underlying our forward-looking statements are reasonable as of the date of this prospectus, we cannot assure you that the forward-looking statements set out in this prospectus will prove to be accurate. We typically identify these forward-looking statements by the use of forward-looking words such as “expect,” “potential,” “continue,” “may,” “will,” “should,” “could,” “would,” “seek,” “intend,” “plan,” “estimate,” “anticipate” or the negative version of these words or other comparable words. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

• our ability to successfully sell our products and services at currently expected prices or otherwise at prices acceptable to us;

• whether we will obtain in a timely manner clearance from the Food and Drug Administration to sell, market and distribute our MASCT System and ForeCYTE Test;

- our ability to successfully re-launch our MASCT System and ForeCYTE Test;

• our ability to successfully develop and commercialize new tests, tools and technologies currently in development and in the time frames currently expected;

• our ability to maintain our business relationships, including with our distributors, suppliers and customers, while we are undergoing the recall we commenced in October 2013 and while we seek additional regulatory clearance to market, sell and distribute our MASCT System and ForeCYTE Test;

• our ability to engage third-party suppliers to manufacture the MASCT System, Microcatheter System, other devices under development and their components at quantities and costs acceptable to us;

• our ability to satisfy ongoing FDA requirements for the MASCT System, ForeCYTE Test and Microcatheter System and to obtain regulatory approvals for our other products and services in development, including our ability to timely and adequately respond to the warning letter we received from the FDA on February 21, 2013 and any issues resulting therefrom;

• our ability to defend the securities class action law suit filed against us on October 10, 2013, and other similar complaints that may be brought in the future, in a timely manner and within the coverage, scope and limits of our insurance policies;

• the benefits and clinical accuracy of the ForeCYTE and ArgusCYTE tests and whether any product or service that we commercialize is safer or more effective than competing products and services;

- our ability to establish and maintain intellectual property rights covering our products and services;

the willingness of health insurance companies, including those who are members of the MultiPlan, FedMed and HealthSmart networks, and other third-party payors to approve our products and services for coverage and reimbursement;

• our ability to establish and maintain an independent sales representative force, including with our current and future distributors and their sub-distributors, to market our products and services that we may develop, both regionally and nationally;

- our expectations regarding, and our ability to satisfy, federal, state and foreign regulatory requirements;

the accuracy of our estimates of the size and characteristics of the markets that our products and services may address;

- our expectations as to future financial performance, expense levels and liquidity sources;
- our ability to attract and retain key personnel; and

our ability to sell additional shares of our Common Stock to Aspire Capital under the terms of our Purchase Agreement with them.

This prospectus also contains estimates and other statistical data provided by independent parties and by us relating to market size and growth and other industry data. These and other forward-looking statements made in this prospectus are presented as of the date on which the statements are made. We have included important factors in the cautionary statements included in this prospectus, particularly in the section entitled “Risk Factors,” that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any new information, future events or circumstances that may affect our business after the date of this prospectus. Except as required by law, we do not intend to update any forward-looking statements after the date on which the statement is made, whether as a result of new information, future events or circumstances or otherwise.

ABOUT THE COMPANY

Unless otherwise noted, (1) the term “Atossa Genetics” refers to Atossa Genetics Inc., a Delaware corporation, (2) the terms “Atossa,” the “Company,” “we,” “us,” and “our” refer to the ongoing business operations of Atossa and its wholly-owned subsidiary, The National Reference Laboratory for Breast Health, Inc., or the “NRLBH,” whether conducted through Atossa or the NRLBH.

We are a healthcare company focused on breast health. We are developing a suite of tests and therapeutic medical devices, laboratory developed tests and services (LDT and/or in vitro diagnostics) that address each of the four stages of the breast health care path: the cytological analysis of cells in nipple aspirate fluid (NAF), the cytological analysis of cells in ductal lavage fluid collected from each individual breast duct with manual breast duct microcatheters; the profiling of newly diagnosed breast cancers through the determination of gene expression profiles in formalin-fixed paraffin embedded breast cancer biopsy tissue; and the monitoring of breast cancer survivors for pre-clinical recurrence through a blood test for circulating tumor cells. We also have a therapeutic program to provide targeted, localized treatment of cancerous and pre-cancerous conditions through our patented microcatheters. All of our products and services are currently under development and are awaiting additional regulatory clearances prior to marketing and commercialization. Our products and services under development include:

ForeCYTE Breast Health Test System: a test system comprised of a medical device for the collection and preparation of NAF specimens that are then processed using cytological testing procedures in our wholly-owned CLIA-certified laboratory, the NRLBH. The ForeCYTE Breast Health Test is not intended to be used to diagnose breast cancer or to serve as a replacement for mammography. We are currently seeking 510(k) clearances from the FDA for this device, which we anticipate receiving in the first quarter of 2014. Upon receiving the 510(k) clearances, we intend to re-launch the ForeCYTE Test.

FullCYTE Breast Health Test: a test system for women identified by their physician as being at high risk for breast cancer. The test is designed for a surgeon to use our patented Class II microcatheter medical devices to collect NAF specimens from individual breast ducts which are then analyzed using cytological testing procedures at the NRLBH. We plan to complete additional validation studies and regulatory clearance of our manufacturing procedures and processes for this test in 2014 and to launch the test in the second half of 2014.

NextCYTE Breast Cancer Test: a test for women newly diagnosed by their physician as having breast cancer that is a qualitative in vitro diagnostic test service, performed in a single laboratory, using the gene expression profile of formalin-fixed, paraffin embedded breast cancer tissue samples to assess a patient’s risk for distant metastasis. It uses advanced microarray expression technologies to quantify and analyze the tumor genetic transcriptome, which represents genes that are being actively expressed within the tumor. This test is in the validation phase and after receiving FDA regulatory clearance we anticipate launching it in the second half of 2014.

ArgusCYTE Breast Health Test: a blood sample test for breast cancer survivors which provides information on the presence of circulating tumor cells. We completed the development of this test and conducted a limited trial launch in 2012. We are completing enhancements to this test and after receiving any necessary additional FDA clearances we plan to re-launch it in mid-2014.

Therapeutic Program: We are also developing our patented microcatheters for the delivery of pharmaceutical formulations directly into the milk ducts. We plan to initially target pre-cancerous lesions and ductal carcinoma in situ, or DCIS, a condition diagnosed in more than 65,000 patients each year. By using this localized delivery method, patients are expected to receive high local concentrations of these drugs at the site of the pre-cancerous lesions or DCIS potentially promoting efficacy of the treatment while limiting systemic exposure, which has the potential to lower the overall toxicity of these treatments. This program has not been approved by the FDA. We plan to identify a partner for the clinical development of the pharmaceutical to be used with our device in the first half of 2014.

Our leading test, the ForeCYTE Breast Health Test, was launched in a “field experience” trial in 2012 and nationally in the beginning of 2013. In October 2013, we voluntarily recalled the ForeCYTE Breast Health Test (also known as the MASCT System or ForeCYTE Test). As a result of this recall, we are not currently marketing this product in the U.S. We intend to obtain an additional FDA 510(k) clearance for the ForeCYTE Test and to re-launch the test upon receiving regulatory clearance. However, the regulatory pathway to obtaining a 510(k) clearance can be lengthy, expensive and unpredictable; we therefore cannot provide any assurances that we will receive a new 510(k) clearance for ForeCYTE or any of our other tests under development in a timely fashion or at all.

Our laboratory, the NRLBH, was established in part to receive and process NAF samples collected with our ForeCYTE Test device. The NRLBH has been certified pursuant to the Clinical Laboratory Improvement Amendments, or CLIA. CLIA certification is legally required to receive reimbursement from federal or state medical benefit programs, like Medicare and Medicaid, and is a practical requirement for most third-party insurance benefit programs. Our CLIA-certified laboratory, which is permitted to accept samples from all 50 states under its CLIA certification, its state licenses, or, in New York under recognized exemption provisions while its license application is pending, examines the specimens by cytological analysis.

In 2013, we entered into the following distribution agreements for our ForeCYTE breast health test device: On April 30, 2013, we entered into a Distribution and Marketing Services Agreement with Millennium Medical Devices LLC, covering the New York City and Northern New Jersey areas. In May 2013, we entered into a distribution agreement with Fisher Healthcare, a division of Fisher Scientific Company, LLC, and in September 2013 we entered into a distribution agreement with McKesson Medical Surgical.

On November 8, 2013, we entered into a common stock purchase agreement with Aspire Capital Fund, LLC, pursuant to which we may, at our election and control, sell up to \$25 million of our common stock to Aspire Capital over the 30 month term of the financing facility. That facility cannot be used unless a registration statement is effective covering the resale of the shares sold to Aspire Capital.

Our Common Stock is quoted on the NASDAQ Capital Market under the symbol "ATOS". Our executive offices are located at 1616 Eastlake Ave. East, Suite 510, Seattle, Washington 98102 and our telephone number is (800) 351-3902. Additional information regarding our company, including our audited financial statements and descriptions of our business, is contained in the documents incorporated by reference in this prospectus. See "Where You Can Find Additional Information" on page __ and "Information Incorporated by Reference" beginning on page 22.

RISK FACTORS

Investors should carefully consider the risks and uncertainties and all other information contained or incorporated by reference in this prospectus, including the risks and uncertainties discussed under “Risk Factors” in our most recent Annual Report on Form 10-K and in subsequent filings, including our most recent Quarterly Report on Form 10-Q, that are incorporated herein by reference. All of these “Risk Factors” are incorporated by reference herein in their entirety. These risks and uncertainties are not the only ones facing us. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our Common Stock could decline due to any of these risks, and you may lose all or part of your investment. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned in this prospectus.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of our securities offered hereby. Except as described in any prospectus supplement, we currently anticipate using the net proceeds from the sale of our securities offered hereby primarily for general corporate purposes, which include, but are not limited to, funding our ongoing and future development and re-launch of our ForeCYTE System when it receives regulatory clearance, funding the development of our other products in the pipeline including our FullCYTE Breast Health Test, NextCYTE Breast Cancer Test, ArgusCYTE Breast Cancer Test, our planned intra-ductal treatment program, and for general and administrative expenses. We may also use a portion of the net proceeds to pay off outstanding indebtedness, if any, and/or acquire or invest in complementary businesses, products and technologies. Further, from time to time we may evaluate acquisition opportunities and engage in related discussions with other companies. Pending the use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

RATIO OF EARNINGS TO FIXED CHARGES

If we offer debt securities and/or preference equity securities under this prospectus, then we will, if required at that time, provide a ratio of earnings to fixed charges and/or ratio of combined fixed charges and preference dividends to earnings, respectively, in the applicable prospectus supplement for such offering.

PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus from time to time in one or more offerings. Registration of the securities covered by this prospectus does not mean, however, that those securities will necessarily be offered or sold.

We may sell the securities separately or together:

- through one or more underwriters or dealers in a public offering and sale by them;
- directly to investors; or
- through agents.

We may sell the securities from time to time:

- in one or more transactions at a fixed price or prices, which may be changed from time to time;
- at market prices prevailing at the times of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

We will describe the method of distribution of the securities and the terms of the offering in the prospectus supplement. Any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

If underwriters are used in the sale of any securities, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions described above. The securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Generally, the underwriters' obligations to purchase the securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the securities if they purchase any of the securities. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions we pay for solicitation of these contracts.

We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement or in a post-effective amendment.

Underwriters, dealers and agents may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments made by the underwriters, dealers or agents, under agreements between us and the underwriters, dealers and agents.

We may grant underwriters who participate in the distribution of securities an option to purchase additional securities to cover over-allotments, if any, in connection with the distribution.

Underwriters, dealers or agents may receive compensation in the form of discounts, concessions or commissions from us or our purchasers, as their agents in connection with the sale of securities. These underwriters, dealers or agents may be considered to be underwriters under the Securities Act. As a result, discounts, commissions or profits on resale received by the underwriters, dealers or agents may be treated as underwriting discounts and commissions. The prospectus supplement will identify any such underwriter, dealer or agent and describe any compensation received by them from us. Any initial public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

Unless otherwise specified in the related prospectus supplement, all securities we offer, other than common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. Any common stock sold pursuant to a prospectus supplement will be listed for trading on the NASDAQ Capital Market or other principal market for our common stock. We may apply to list any series of debt securities, preferred stock or warrants on an exchange, but we are not obligated to do so. Therefore, there may not be liquidity or a trading market for any series of securities.

Any underwriter may engage in over-allotment transactions, stabilizing transactions, short-covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time. We make no representation or prediction as to the direction or magnitude of any effect that such transactions may have on the price of the securities. For a description of these activities, see the information under the heading “Underwriting” or “Plan of Distribution” in the applicable prospectus supplement.

Underwriters, broker-dealers or agents who may become involved in the sale of the common stock may engage in transactions with and perform other services for us in the ordinary course of their business for which they receive compensation.

DESCRIPTION OF SECURITIES TO BE REGISTERED

We may offer shares of our common stock, preferred stock, various series of debt securities and warrants to purchase any such securities with a total value of up to \$40,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities.

Common Stock

Holders of Common Stock are entitled to receive ratably dividends out of funds legally available, if and when declared from time to time by our Board of Directors. We have never paid any cash dividends on our Common Stock and our Board of Directors does not anticipate that we will pay cash dividends in the foreseeable future. The future payment of dividends, if any, on our Common Stock is within the discretion of the Board of Directors and will depend upon earnings, capital requirements, financial condition and other relevant factors. Holders of Common Stock are entitled to one vote for each share held on each matter to be voted on by stockholders. There is no cumulative voting in the election of directors. In the event of liquidation, dissolution or winding up of the affairs of us, holders of Common Stock are to share in all assets remaining after the payment of liabilities and any preferential distributions payable to preferred stockholders, if any. The holders of Common Stock have no preemptive or conversion rights and are not subject to further calls or assessments. There are no redemption or sinking fund provisions applicable to the Common Stock. The rights of the holders of the Common Stock are subject to any rights that may be fixed for holders of preferred stock, if any. All of the outstanding shares of Common Stock are fully paid and non-assessable.

Certificate of Incorporation

Under our Certificate of Incorporation, as amended, our Board of Directors, without further action by our stockholders, currently has the authority to issue up to 10,000,000 shares of preferred stock and to fix the rights (including voting rights), preferences and privileges of these “blank check” preferred shares. Such preferred stock may have rights, including economic rights, senior to our Common Stock. As a result, the issuance of the preferred stock could have a material adverse effect on the price of our Common Stock and could make it more difficult for a third party to acquire a majority of our outstanding Common Stock.

Anti-Takeover Devices

Our certificate of incorporation and bylaws include a number of provisions that may have the effect of delaying, deferring or preventing another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our Board of Directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Board Composition and Filling Vacancies. In accordance with our certificate of incorporation, our Board of Directors is divided into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also provides that directors may only be removed from office for cause and only by the affirmative vote of holders of 75% or more of the outstanding shares of capital stock then entitled to vote at an election of directors. Furthermore, any vacancy on our Board of Directors, however occurring, including any vacancy resulting from an increase in the size of the board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum. The classification of directors, together with the limitations on removal of directors and treatment of vacancies, has the effect of making it more difficult for stockholders to change the composition of our Board of Directors.

Undesignated Preferred Stock. Our certificate of incorporation authorizes “blank-check” preferred stock, which means that our Board of Directors has the authority to designate one or more series of preferred stock without stockholder approval. These series of preferred stock may have superior rights, preferences and privileges over our Common Stock, including dividend rights, voting rights and liquidation preferences. The ability of our Board of Directors to issue shares of our preferred stock without stockholder approval could deter takeover offers and make it more difficult or costly for a third party to acquire us without the consent of our Board of Directors.

Section 203 of the Delaware General Corporation Law. In addition, our certificate of incorporation does not opt out of Section 203 of the Delaware General Corporation Law, which protects a corporation against an unapproved takeover by prohibiting a company from engaging in any business combination with any interested stockholder (defined as a stockholder owning more than 15% of the outstanding shares) for a period of three years from the time such stockholder became a 15% holder unless approved by our Board of Directors.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is VStock Transfer, LLC, 77 Spruce Street, Suite 201, Cedarhurst, New York 11516 (Telephone: (212) 828-8436; Facsimile (646) 536-3179).

Quotation

Our Common Stock is currently quoted on the NASDAQ Capital Market under the symbol "ATOS".

Preferred Stock

We may issue shares of our preferred stock from time to time, in one or more series. Under our certificate of incorporation, our board of directors has the authority, without further action by stockholders, to designate up to 10,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference and sinking fund terms, any or all of which may be greater than the rights of the common stock.

If we issue preferred stock, we will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designations relating to that series. If we issue preferred stock, we will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designations that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the prospectus supplement related to any series of preferred stock we may offer, as well as the complete certificate of designations that contains the terms of the applicable series of preferred stock.

Debt Securities

The paragraphs below describe the general terms and provisions of the debt securities we may issue. When we offer to sell a particular series of debt securities, we will describe the specific terms of the securities in a supplement to this prospectus, including any additional covenants or changes to existing covenants relating to such series. The prospectus supplement also will indicate whether the general terms and provisions described in this prospectus apply to a particular series of debt securities. You should read the actual indenture if you do not fully understand a term or the way we use it in this prospectus.

We may offer senior or subordinated debt securities. Each series of debt securities may have different terms. The senior debt securities will be issued under one or more senior indentures, dated as of a date prior to such issuance, between us and a trustee, as amended or supplemented from time to time. We will refer to any such indenture throughout this prospectus as a “senior indenture.” Any subordinated debt securities will be issued under one or more separate indentures, dated as of a date prior to such issuance, between us and a trustee, as amended or supplemented from time to time. We will refer to any such indenture throughout this prospectus as a “subordinated indenture” and to the trustee under any senior or subordinated indenture as the “trustee.” The senior indenture and the subordinated indenture are sometimes collectively referred to in this prospectus as the “indentures.” The indentures will be subject to and governed by the Trust Indenture Act of 1939, as amended. We included copies of the forms of the indentures as exhibits to our registration statement and they are incorporated into this prospectus by reference.

If we issue debt securities at a discount from their principal amount, then, for purposes of calculating the aggregate initial offering price of the offered securities issued under this prospectus, we will include only the initial offering price of the debt securities and not the principal amount of the debt securities.

We have summarized below the material provisions of the indentures and the debt securities, or indicated which material provisions will be described in the related prospectus supplement. The prospectus supplement relating to any particular securities offered will describe the specific terms of the securities, which may be in addition to or different from the general terms summarized in this prospectus. Because the summary in this prospectus and in any prospectus supplement does not contain all of the information that you may find useful, you should read the documents relating to the securities that are described in this prospectus or in any applicable prospectus supplement. Please read “Where You Can Find More Information” in this prospectus to find out how you can obtain a copy of those documents. Except as otherwise indicated, the terms of the indentures are identical. As used under this caption, the term “debt securities” includes the debt securities being offered by this prospectus and all other debt securities issued by us under the indentures.

General

The indentures:

do not limit the amount of debt securities that we may issue;

allow us to issue debt securities in one or more series;

do not require us to issue all of the debt securities of a series at the same time;

allow us to reopen a series to issue additional debt securities without the consent of the holders of the debt securities of such series; and

provide that the debt securities will be unsecured, except as may be set forth in the applicable prospectus supplement.

Unless we give you different information in the applicable prospectus supplement, the senior debt securities will be unsubordinated obligations and will rank equally with all of our other unsecured and unsubordinated indebtedness. Payments on the subordinated debt securities will be subordinated to the prior payment in full of all of our senior indebtedness, as described under “Description of the Debt Securities—Subordination” and in the applicable prospectus supplement.

Each indenture provides that we may, but need not, designate more than one trustee under an indenture. Any trustee under an indenture may resign or be removed and a successor trustee may be appointed to act with respect to the series of debt securities administered by the resigning or removed trustee. If two or more persons are acting as trustee with respect to different series of debt securities, each trustee shall be a trustee of a trust under the applicable indenture separate and apart from the trust administered by any other trustee. Except as otherwise indicated in this prospectus, any action described in this prospectus to be taken by each trustee may be taken by each trustee with respect to, and only with respect to, the one or more series of debt securities for which it is trustee under the applicable indenture.

The prospectus supplement for each offering will provide the following terms, where applicable:

- the title of the debt securities and whether they are senior or subordinated;

the aggregate principal amount of the debt securities being offered, the aggregate principal amount of the debt securities outstanding as of the most recent practicable date and any limit on their aggregate principal amount, including the aggregate principal amount of debt securities authorized;

the price at which the debt securities will be issued, expressed as a percentage of the principal and, if other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof or, if applicable, the portion of the principal amount of such debt securities that is convertible into common stock or preferred stock or the method by which any such portion shall be determined;

if convertible, the terms on which such debt securities are convertible, including the initial conversion price or rate and the conversion period and any applicable limitations on the ownership or transferability of common stock or preferred stock received on conversion;

the date or dates, or the method for determining the date or dates, on which the principal of the debt securities will be payable;

the fixed or variable interest rate or rates of the debt securities, or the method by which the interest rate or rates is determined;

- the date or dates, or the method for determining the date or dates, from which interest will accrue;

- the dates on which interest will be payable;
- the record dates for interest payment dates, or the method by which we will determine those dates;
- the persons to whom interest will be payable;
- the basis upon which interest will be calculated if other than that of a 360-day year of twelve 30-day months;

any make-whole amount, which is the amount in addition to principal and interest that is required to be paid to the holder of a debt security as a result of any optional redemption or accelerated payment of such debt security, or the method for determining the make-whole amount;

the place or places where the principal of, and any premium, or make-whole amount, and interest on, the debt securities will be payable;

- where the debt securities may be surrendered for registration of transfer or conversion or exchange;
- where notices or demands to or upon us in respect of the debt securities and the applicable indenture may be served;
- the times, prices and other terms and conditions upon which we may redeem the debt securities;

any obligation we have to redeem, repay or purchase the debt securities pursuant to any sinking fund or analogous provision or at the option of holders of the debt securities, and the times and prices at which we must redeem, repay or purchase the debt securities as a result of such an obligation;

the currency or currencies in which the debt securities are denominated and payable if other than United States dollars, which may be a foreign currency or units of two or more foreign currencies or a composite currency or currencies and the terms and conditions relating thereto, and the manner of determining the equivalent of such foreign currency in United States dollars;

whether the principal of, and any premium, or make-whole amount, or interest on, the debt securities of the series are to be payable, at our election or at the election of a holder, in a currency or currencies other than that in which the debt securities are denominated or stated to be payable, and other related terms and conditions;

whether the amount of payments of principal of, and any premium, or make-whole amount, or interest on, the debt securities may be determined according to an index, formula or other method and how such amounts will be

determined;

whether the debt securities will be in registered form, bearer form or both and: (1) if in registered form, the person to whom any interest shall be payable, if other than the person in whose name the security is registered at the close of business on the regular record date for such interest; or (2) if in bearer form, the manner in which, or the person to whom, any interest on the security shall be payable if otherwise than upon presentation and surrender upon maturity;

any restrictions applicable to the offer, sale or delivery of securities in bearer form and the terms upon which securities in bearer form of the series may be exchanged for securities in registered form of the series and vice versa if permitted by applicable laws and regulations;

whether any debt securities of the series are to be issuable initially in temporary global form and whether any debt securities of the series are to be issuable in permanent global form with or without coupons and, if so, whether beneficial owners of interests in any such permanent global security may or shall be required to exchange their interests for other debt securities of the series, and the manner in which interest shall be paid;

the identity of the depositary for securities in registered form, if such series are to be issuable as a global security;

the date as of which any debt securities in bearer form or in temporary global form shall be dated if other than the original issuance date of the first security of the series to be issued;

the applicability, if any, of the defeasance and covenant defeasance provisions described in this prospectus or in the applicable indenture;

whether and under what circumstances we will pay any additional amounts on the debt securities in respect of any tax, assessment or governmental charge and, if so, whether we will have the option to redeem the debt securities in lieu of making such a payment;

whether and under what circumstances the debt securities being offered are convertible into common stock or preferred stock, as the case may be, including the conversion price or rate or manner or calculation thereof;

the circumstances, if any, specified in the applicable prospectus supplement, under which beneficial owners of interests in the global security may obtain definitive debt securities and the manner in which payments on a permanent global debt security will be made if any debt securities are issuable in temporary or permanent global form;

any provisions granting special rights to holders of securities upon the occurrence of such events as specified in the applicable prospectus supplement;

if the debt securities of such series are to be issuable in definitive form only upon receipt of certain certificates or other documents or satisfaction of other conditions, then the form and/or terms of such certificates, documents or conditions;

the name of the applicable trustee and the nature of any material relationship with us or any of our affiliates, and the percentage of debt securities of the class necessary to require the trustee to take action;

any deletions from, modifications of, or additions to our events of default or covenants and any change in the right of any trustee or any of the holders to declare the principal amount of any of such debt securities due and payable;

- applicable CUSIP numbers; and

- any other terms of such debt securities not inconsistent with the provisions of the applicable indenture.

We may issue debt securities at a discount below their principal amount and provide for less than the entire principal amount thereof to be payable upon declaration of acceleration of the maturity of the debt securities. We refer to any such debt securities throughout this prospectus as “original issue discount securities.” The applicable prospectus supplement will describe the United States federal income tax consequences and other relevant considerations applicable to original issue discount securities.

We also may issue indexed debt securities. Payments of principal of and premium and interest on, indexed debt securities are determined with reference to the rate of exchange between the currency or currency unit in which the debt security is denominated and any other currency or currency unit specified by us, to the relationship between two or more currencies or currency units or by other similar methods or formulas specified in the prospectus supplement.

Except as described under “—Merger, Consolidation or Sale of Assets” or as may be set forth in any prospectus supplement, the debt securities will not contain any provisions that: (1) would limit our ability to incur indebtedness; or (2) would afford holders of debt securities protection in the event of (a) a highly leveraged or similar transaction involving us, or (b) a change of control or reorganization, restructuring, merger or similar transaction involving us that may adversely affect the holders of the debt securities. In the future, we may enter into transactions, such as the sale of all or substantially all of our assets or a merger or consolidation, that may have an adverse effect on our ability to service our indebtedness, including the debt securities, by, among other things, substantially reducing or eliminating our assets.

Neither the Delaware General Corporation Law nor our governing instruments define the term “substantially all” as it relates to the sale of assets. Additionally, Delaware cases interpreting the term “substantially all” rely upon the facts and circumstances of each particular case. Consequently, to determine whether a sale of “substantially all” of our assets has occurred, a holder of debt securities must review the financial and other information that we have disclosed to the public.

We will provide you with more information in the applicable prospectus supplement regarding any deletions, modifications, or additions to the events of default or covenants that are described below, including any addition of a covenant or other provision providing event risk or similar protection.

Payment

Unless we give you different information in the applicable prospectus supplement, the principal of, and any premium, or make-whole amount, and interest on, any series of the debt securities will be payable at the corporate trust office of the trustee. We will provide you with the address of the trustee in the applicable prospectus supplement. We may also pay interest by mailing a check to the address of the person entitled to it as it appears in the applicable register for the debt securities or by wire transfer of funds to that person at an account maintained within the United States.

All monies that we pay to a paying agent or a trustee for the payment of the principal of, and any premium, or make-whole amount, or interest on, any debt security will be repaid to us if unclaimed at the end of two years after the obligation underlying payment becomes due and payable. After funds have been returned to us, the holder of the debt security may look only to us for payment, without payment of interest for the period which we hold the funds.

Denomination, Interest, Registration and Transfer

Unless otherwise described in the applicable prospectus supplement, the debt securities of any series will be issuable in denominations of \$1,000 and integral multiples of \$1,000.

Subject to the limitations imposed upon debt securities that are evidenced by a computerized entry in the records of a depository company rather than by physical delivery of a note, a holder of debt securities of any series may:

exchange them for any authorized denomination of other debt securities of the same series and of a like aggregate principal amount and kind upon surrender of such debt securities at the corporate trust office of the applicable trustee or at the office of any transfer agent that we designate for such purpose; and

surrender them for registration of transfer or exchange at the corporate trust office of the applicable trustee or at the office of any transfer agent that we designate for such purpose.

Every debt security surrendered for registration of transfer or exchange must be duly endorsed or accompanied by a written instrument of transfer satisfactory to the applicable trustee or transfer agent. Payment of a service charge will not be required for any registration of transfer or exchange of any debt securities, but we or the trustee may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith. If in addition to the applicable trustee, the applicable prospectus supplement refers to any transfer agent initially designated by us for any series of debt securities, we may at any time rescind the designation of any such transfer agent or

approve a change in the location through which any such transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for such series. We may at any time designate additional transfer agents for any series of debt securities.

Neither we, nor any trustee, will be required to:

issue, register the transfer of or exchange debt securities of any series during a period beginning at the opening of business 15 days before the day that the notice of redemption of any debt securities selected for redemption is mailed and ending at the close of business on the day of such mailing;

register the transfer of or exchange any debt security, or portion thereof, so selected for redemption, in whole or in part, except the unredeemed portion of any debt security being redeemed in part; and

issue, register the transfer of or exchange any debt security that has been surrendered for repayment at the option of the holder, except the portion, if any, of such debt security not to be so repaid.

Merger, Consolidation or Sale of Assets

The indentures provide that we may, without the consent of the holders of any outstanding debt securities: (1) consolidate with; (2) sell, lease or convey all or substantially all of our assets to; or (3) merge with or into, any other entity provided that:

either we are the continuing entity, or the successor entity, if other than us, assumes the obligations: (A) to pay the principal of, and any premium (or make-whole amount) and interest on, all of the debt securities; and (B) to duly perform and observe all of the covenants and conditions contained in each indenture;

after giving effect to the transaction, there is no event of default under the indentures and no event which, after notice or the lapse of time, or both, would become such an event of default, occurs and continues; and

- an officers' certificate and legal opinion covering such conditions are delivered to each applicable trustee.

Covenants

Existence. Except as permitted under “—Merger, Consolidation or Sale of Assets,” the indentures require us to do or cause to be done all things necessary to preserve and keep in full force and effect our existence, rights and franchises. However, the indentures do not require us to preserve any right or franchise if we determine that any right or franchise is no longer desirable in the conduct of our business.

Provision of financial information. The indentures require us to: (1) within 15 days of each of the respective dates by which we are required to file our annual reports, quarterly reports and other documents with the SEC, file with the trustee copies of the annual report, quarterly report and other documents that we file with the SEC under Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act; (2) file with the trustee and the SEC any additional information, documents and reports regarding compliance by us with the conditions and covenants of the indentures, as required; (3) within 30 days after the filing with the trustee, mail to all holders of debt securities, as their names and addresses appear in the applicable register for such debt securities, without cost to such holders, summaries of any documents and reports required to be filed by us pursuant to (1) and (2) above; and (4) supply, promptly upon written request and payment of the reasonable cost of duplication and delivery, copies of such documents to any prospective holder.

Additional covenants. The applicable prospectus supplement will set forth any additional covenants of the Company relating to any series of debt securities.

Events of Default, Notice and Waiver

Unless the applicable prospectus supplement states otherwise, when we refer to “events of default” as defined in the indentures with respect to any series of debt securities, we mean:

- default in the payment of any installment of interest on any debt security of such series continuing for 30 days;

• default in the payment of principal of, or any premium, or make-whole amount, on any debt security of such series for five business days at its stated maturity;

• default in making any sinking fund payment as required for any debt security of such series for five business days;

• default in the performance or breach of any covenant or warranty in the debt securities or in the indenture by the Company continuing for 60 days after written notice as provided in the applicable indenture, but not of a covenant added to the indenture solely for the benefit of a series of debt securities issued thereunder other than such series;

• bankruptcy, insolvency or reorganization, or court appointment of a receiver, liquidator or trustee of the Company or any significant subsidiary of the Company; and

- any other event of default provided with respect to a particular series of debt securities.

When we use the term “significant subsidiary,” we refer to the meaning ascribed to such term in Rule 1-02 of Regulation S-X promulgated under the Securities Act of 1933, as amended, or Securities Act.

If an event of default occurs and is continuing with respect to debt securities of any series outstanding, then the applicable trustee or the holders of 25% or more in principal amount of the debt securities of that series will have the right to declare the principal amount of all the debt securities of that series to be due and payable. If the debt securities of that series are original issue discount securities or indexed securities, then the applicable trustee or the holders of 25% or more in principal amount of the debt securities of that series will have the right to declare the portion of the principal amount as may be specified in the terms thereof to be due and payable.

However, at any time after such a declaration of acceleration has been made, but before a judgment or decree for payment of the money due has been obtained by the applicable trustee, the holders of at least a majority in principal amount of outstanding debt securities of such series or of all debt securities then outstanding under the applicable indenture may rescind and annul such declaration and its consequences if:

we have deposited with the applicable trustee all required payments of the principal, any premium, or make-whole amount, interest and, to the extent permitted by law, interest on overdue installment of interest, plus applicable fees, expenses, disbursements and advances of the applicable trustee; and

all events of default, other than the non-payment of accelerated principal, or a specified portion thereof, and any premium, or make-whole amount, have been cured or waived.

The indentures also provide that the holders of at least a majority in principal amount of the outstanding debt securities of any series or of all debt securities then outstanding under the applicable indenture may, on behalf of all holders, waive any past default with respect to such series and its consequences, except a default:

- in the payment of the principal, any premium, or make-whole amount, or interest;

in respect of a covenant or provision contained in the applicable indenture that cannot be modified or amended without the consent of the holders of the outstanding debt security that is affected by the default; or

in respect of a covenant or provision for the benefit or protection of the trustee, without its express written consent.

The indentures require each trustee to give notice to the holders of debt securities within 90 days of a default unless such default has been cured or waived. However, the trustee may withhold notice if specified persons of such trustee consider such withholding to be in the interest of the holders of debt securities. The trustee may not withhold notice of a default in the payment of principal, any premium or interest on any debt security of such series or in the payment of any sinking fund installment in respect of any debt security of such series.

The indentures provide that holders of debt securities of any series may not institute any proceedings, judicial or otherwise, with respect to such indenture or for any remedy under the indenture, unless the trustee fails to act for a period of 60 days after the trustee has received a written request to institute proceedings in respect of an event of default from the holders of 25% or more in principal amount of the outstanding debt securities of such series, as well as an offer of indemnity reasonably satisfactory to the trustee. However, this provision will not prevent any holder of debt securities from instituting suit for the enforcement of payment of the principal of, and any premium, or make-whole amount, and interest on, such debt securities at the respective due dates thereof.

The indentures provide that, subject to provisions in each indenture relating to its duties in the case of a default, a trustee has no obligation to exercise any of its rights or powers at the request or direction of any holders of any series of debt securities then outstanding under the indenture, unless the holders have offered to the trustee reasonable security or indemnity. The holders of at least a majority in principal amount of the outstanding debt securities of any series or of all debt securities then outstanding under an indenture shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the applicable trustee, or of exercising any trust or power conferred upon such trustee. However, a trustee may refuse to follow any direction which:

- is in conflict with any law or the applicable indenture;

• upon a good faith determination of a responsible officer of the trustee, may involve the trustee in personal liability; or

• upon a good faith determination of a responsible officer of the trustee, may be unduly prejudicial to the holders of debt securities of the series not joining the proceeding.

Within 120 days after the close of each fiscal year, we will be required to deliver to each trustee a certificate, signed by one of our several specified officers, stating whether or not that officer has knowledge of any default under the applicable indenture. If the officer has knowledge of any default, the notice must specify the nature and status of the default.

Modification of the Indentures

The indentures provide that modifications and amendments may be made only with the consent of the affected holders of at least a majority in principal amount of all outstanding debt securities issued under that indenture. However, no such modification or amendment may, without the consent of all of the holders of the debt securities affected by the modification or amendment:

• change the stated maturity of the principal of, or any premium, or make-whole amount, on, or any installment of principal of or interest on, any such debt security;

• reduce the principal amount of, the rate or amount of interest on or any premium, or make-whole amount, payable on redemption of any such debt security;

• reduce the amount of principal of an original issue discount security that would be due and payable upon declaration of acceleration of the maturity thereof or would be provable in bankruptcy, or adversely affect any right of repayment of the holder of any such debt security;

• change the place of payment or the coin or currency for payment of principal of, or any premium, or make-whole amount, or interest on, any such debt security;

• impair the right to institute suit for the enforcement of any payment on or with respect to any such debt security;

• reduce the percentage in principal amount of any outstanding debt securities necessary to modify or amend the applicable indenture with respect to such debt securities, to waive compliance with particular provisions thereof or defaults and consequences thereunder or to reduce the quorum or voting requirements set forth in the applicable indenture; and

• modify any of the foregoing provisions or any of the provisions relating to the waiver of particular past defaults or covenants, except to increase the required percentage to effect such action or to provide that some of the other provisions may not be modified or waived without the consent of the holder of such debt security.

The holders of a majority in aggregate principal amount of the outstanding debt securities of each series may, on behalf of all holders of debt securities of that series, waive, insofar as that series is concerned, our compliance with material restrictive covenants of the applicable indenture.

Edgar Filing: ATOSSA GENETICS INC - Form 424B5

We and our respective trustee may make modifications and amendments of an indenture without the consent of any holder of debt securities for any of the following purposes:

- to evidence the succession of another person to us as obligor under such indenture;

to add to our covenants for the benefit of the holders of all or any series of debt securities or to surrender any right or power conferred upon us in such indenture;

- to add events of default for the benefit of the holders of all or any series of debt securities;

to add or change any provisions of an indenture: (1) to change or eliminate restrictions on the payment of principal of, or premium, or make-whole amount, or interest on, debt securities in bearer form; or (2) to permit or facilitate the issuance of debt securities in uncertificated form, provided that such action shall not adversely affect the interests of the holders of the debt securities of any series in any material respect;

to change or eliminate any provisions of an indenture, provided that any such change or elimination shall become effective only when there are no debt securities outstanding of any series created prior thereto which are entitled to the benefit of such provision;

- to secure the debt securities;
- to establish the form or terms of debt securities of any series;

to provide for the acceptance of appointment by a successor trustee or facilitate the administration of the trusts under an indenture by more than one trustee;

to cure any ambiguity, defect or inconsistency in an indenture, provided that such action shall not adversely affect the interests of holders of debt securities of any series issued under such indenture; and

to supplement any of the provisions of an indenture to the extent necessary to permit or facilitate defeasance and discharge of any series of such debt securities, provided that such action shall not adversely affect the interests of the holders of the outstanding debt securities of any series.

Voting

The indentures provide that in determining whether the holders of the requisite principal amount of outstanding debt securities of a series have given any request, demand, authorization, direction, notice, consent or waiver under the indentures or whether a quorum is present at a meeting of holders of debt securities:

the principal amount of an original issue discount security that shall be deemed to be outstanding shall be the amount of the principal thereof that would be due and payable as of the date of such determination upon declaration of acceleration of the maturity thereof;

the principal amount of any debt security denominated in a foreign currency that shall be deemed outstanding shall be the United States dollar equivalent, determined on the issue date for such debt security, of the principal amount or, in the case of an original issue discount security, the United States dollar equivalent on the issue date of such debt security of the amount determined as provided in the preceding bullet point;

the principal amount of an indexed security that shall be deemed outstanding shall be the principal face amount of such indexed security at original issuance, unless otherwise provided for such indexed security under such indenture; and

- debt securities owned by us or any other obligor upon the debt securities or by any affiliate of ours or of such other obligor shall be disregarded.

The indentures contain provisions for convening meetings of the holders of debt securities of a series. A meeting will be permitted to be called at any time by the applicable trustee, and also, upon request, by us or the holders of at least 25% in principal amount of the outstanding debt securities of such series, in any such case upon notice given as provided in such indenture. Except for any consent that must be given by the holder of each debt security affected by the modifications and amendments of an indenture described above, any resolution presented at a meeting or

adjourned meeting duly reconvened at which a quorum is present may be adopted by the affirmative vote of the holders of a majority of the aggregate principal amount of the outstanding debt securities of that series represented at such meeting.

Notwithstanding the preceding paragraph, except as referred to above, any resolution relating to a request, demand, authorization, direction, notice, consent, waiver or other action that may be made, given or taken by the holders of a specified percentage, which is less than a majority of the aggregate principal amount of the outstanding debt securities of a series, may be adopted at a meeting or adjourned meeting duly reconvened at which a quorum is present by the affirmative vote of such specified percentage.

Any resolution passed or decision taken at any properly held meeting of holders of debt securities of any series will be binding on all holders of such series. The quorum at any meeting called to adopt a resolution, and at any reconvened meeting, will be persons holding or representing a majority in principal amount of the outstanding debt securities of a series. However, if any action is to be taken relating to a consent or waiver which may be given by the holders of at least a specified percentage in principal amount of the outstanding debt securities of a series, the persons holding such percentage will constitute a quorum.

Notwithstanding the foregoing provisions, the indentures provide that if any action is to be taken at a meeting with respect to any request, demand, authorization, direction, notice, consent, waiver or other action that such indenture expressly provides may be made, given or taken by the holders of a specified percentage in principal amount of all outstanding debt securities affected by such action, or of the holders of such series and one or more additional series:

- there shall be no minimum quorum requirement for such meeting; and

the principal amount of the outstanding debt securities of such series that vote in favor of such request, demand, authorization, direction, notice, consent, waiver or other action shall be taken account in determining whether such request, demand, authorization, direction, notice, consent, waiver or other action has been made, given or taken under such indenture.

Subordination

Unless otherwise provided in the applicable prospectus supplement, subordinated securities will be subject to the following subordination provisions.

Upon any distribution to our creditors in a liquidation, dissolution or reorganization, the payment of the principal of and interest on any subordinated securities will be subordinated to the extent provided in the applicable indenture in right of payment to the prior payment in full of all senior debt. However, our obligation to make payments of the principal of and interest on such subordinated securities otherwise will not be affected. No payment of principal or interest will be permitted to be made on subordinated securities at any time if a default on senior debt exists that permits the holders of such senior debt to accelerate its maturity and the default is the subject of judicial proceedings or we receive notice of the default. After all senior debt is paid in full and until the subordinated securities are paid in full, holders of subordinated securities will be subrogated to the rights of holders of senior debt to the extent that distributions otherwise payable to holders of subordinated securities have been applied to the payment of senior debt. The subordinated indenture will not restrict the amount of senior debt or other indebtedness of the Company and its subsidiaries. As a result of these subordination provisions, in the event of a distribution of assets upon insolvency, holders of subordinated securities may recover less, ratably, than our general creditors.

The term “senior debt” will be defined in the applicable indenture as the principal of and interest on, or substantially similar payments to be made by us in respect of, other outstanding indebtedness, whether outstanding at the date of execution of the applicable indenture or subsequently incurred, created or assumed. The prospectus supplement may include a description of additional terms implementing the subordination feature.

No restrictions will be included in any indenture relating to subordinated securities upon the creation of additional senior debt.

If this prospectus is being delivered in connection with the offering of a series of subordinated securities, the accompanying prospectus supplement or the information incorporated in this prospectus by reference will set forth the approximate amount of senior debt outstanding as of the end of our most recent fiscal quarter.

Discharge, Defeasance and Covenant Defeasance

Unless otherwise indicated in the applicable prospectus supplement, the indentures allow us to discharge our obligations to holders of any series of debt securities issued under any indenture when:

either: (1) all securities of such series have already been delivered to the applicable trustee for cancellation; or (2) all securities of such series have not already been delivered to the applicable trustee for cancellation but (A) have become due and payable, (B) will become due and payable within one year, or (C) if redeemable at our option, are to be redeemed within one year, and we have irrevocably deposited with the applicable trustee, in trust, funds in such currency or currencies, currency unit or units or composite currency or currencies in which such debt securities are payable, an amount sufficient to pay the entire indebtedness on such debt securities in respect of principal and any premium, or make-whole amount, and interest to the date of such deposit if such debt securities have become due and payable or, if they have not, to the stated maturity or redemption date;

- we have paid or caused to be paid all other sums payable; and

an officers' certificate and an opinion of counsel stating the conditions to discharging the debt securities have been satisfied has been delivered to the trustee.

Unless otherwise indicated in the applicable prospectus supplement, the indentures provide that, upon our irrevocable deposit with the applicable trustee, in trust, of an amount, in such currency or currencies, currency unit or units or composite currency or currencies in which such debt securities are payable at stated maturity, or government obligations, or both, applicable to such debt securities, which through the scheduled payment of principal and interest in accordance with their terms will provide money in an amount sufficient to pay the principal of, and any premium, or make-whole amount, and interest on, such debt securities, and any mandatory sinking fund or analogous payments thereon, on the scheduled due dates therefor, the issuing company may elect either:

- to defease and be discharged from any and all obligations with respect to such debt securities; or

to be released from its obligations with respect to such debt securities under the applicable indenture or, if provided in the applicable prospectus supplement, its obligations with respect to any other covenant, and any omission to comply with such obligations shall not constitute an event of default with respect to such debt securities.

Notwithstanding the above, we may not elect to defease and be discharged from the obligation to pay any additional amounts upon the occurrence of particular events of tax, assessment or governmental charge with respect to payments on such debt securities and the obligations to register the transfer or exchange of such debt securities, to replace temporary or mutilated, destroyed, lost or stolen debt securities, to maintain an office or agency in respect of such debt securities, or to hold monies for payment in trust.

The indentures only permit us to establish the trust described in the paragraph above if, among other things, it has delivered to the applicable trustee an opinion of counsel to the effect that the holders of such debt securities will not recognize income, gain or loss for United States federal income tax purposes as a result of such defeasance or covenant defeasance and will be subject to United States federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such defeasance or covenant defeasance had not occurred. Such opinion of counsel, in the case of defeasance, will be required to refer to and be based upon a ruling received from or published by the Internal Revenue Service or a change in applicable United States federal income tax law occurring after the date of the indenture. In the event of such defeasance, the holders of such debt securities would be able to look only to such trust fund for payment of principal, any premium, or make-whole amount, and interest.

When we use the term “government obligations,” we mean securities that are:

- direct obligations of the United States or the government that issued the foreign currency in which the debt securities of a particular series are payable, for the payment of which its full faith and credit is pledged; or

obligations of a person controlled or supervised by and acting as an agency or instrumentality of the United States or other government that issued the foreign currency in which the debt securities of such series are payable, the payment

of which is unconditionally guaranteed as a full faith and credit obligation by the United States or such other government, which are not callable or redeemable at the option of the issuer thereof and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such government obligation or a specific payment of interest on or principal of any such government obligation held by such custodian for the account of the holder of a depository receipt. However, except as required by law, such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the government obligation or the specific payment of interest on or principal of the government obligation evidenced by such depository receipt.

Unless otherwise provided in the applicable prospectus supplement, if after we have deposited funds and/or government obligations to effect defeasance or covenant defeasance with respect to debt securities of any series, (1) the holder of a debt security of such series is entitled to, and does, elect under the terms of the applicable indenture or the terms of such debt security to receive payment in a currency, currency unit or composite currency other than that in which such deposit has been made in respect of such debt security, or (2) a conversion event occurs in respect of the currency, currency unit or composite currency in which such deposit has been made, the indebtedness represented by such debt security will be deemed to have been, and will be, fully discharged and satisfied through the payment of the principal of, and premium, or make whole amount, and interest on, such debt security as they become due out of the proceeds yielded by converting the amount so deposited in respect of such debt security into the currency, currency unit or composite currency in which such debt security becomes payable as a result of such election or such cessation of usage based on the applicable market exchange rate.

When we use the term “conversion event,” we mean the cessation of use of:

a currency, currency unit or composite currency both by the government of the country that issued such currency and for the settlement of transactions by a central bank or other public institutions of or within the international banking community;

the European Currency Unit both within the European Monetary System and for the settlement of transactions by public institutions of or within the European Communities; or

any currency unit or composite currency other than the European Currency Unit for the purposes for which it was established.

Unless otherwise provided in the applicable prospectus supplement, all payments of principal of, and any premium, or make-whole amount, and interest on, any debt security that is payable in a foreign currency that ceases to be used by its government of issuance shall be made in United States dollars.

In the event that (1) we effect covenant defeasance with respect to any debt securities and (2) those debt securities are declared due and payable because of the occurrence of any event of default, the amount in the currency, currency unit or composite currency in which such debt securities are payable, and government obligations on deposit with the applicable trustee, will be sufficient to pay amounts due on such debt securities at the time of their stated maturity but may not be sufficient to pay amounts due on such debt securities at the time of the acceleration resulting from such event of default. However, the issuing company would remain liable to make payments of any amounts due at the time of acceleration.

If a trustee or paying agent is unable to apply any money in accordance with the foregoing paragraphs describing discharge and defeasance by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations under the indentures and such securities from which the Company has been discharged or released pursuant to the foregoing shall be revived and reinstated as though no deposit had occurred with respect to such securities, until such time as the trustee or paying agent is permitted to apply all money held in trust with respect to such securities in accordance with the foregoing; provided, that if the Company makes any payment of principal of or any premium or interest on any such security following such reinstatement of its obligations, the Company shall be subrogated to the rights (if any) of the holders of such securities to receive such payment from the money so held in trust.

The applicable prospectus supplement may further describe the provisions, if any, permitting such defeasance or covenant defeasance, including any modifications to the provisions described above, with respect to the debt securities of or within a particular series.

Conversion Rights

The terms and conditions, if any, upon which the debt securities are convertible into common stock or preferred stock will be set forth in the applicable prospectus supplement. The terms will include whether the debt securities are

convertible into shares of common stock or preferred stock, the conversion price, or manner of calculation thereof, the conversion period, provisions as to whether conversion will be at the issuing company's option or the option of the holders, the events requiring an adjustment of the conversion price and provisions affecting conversion in the event of the redemption of the debt securities and any restrictions on conversion.

Global Securities

The debt securities of a series may be issued in whole or in part in the form of one or more global securities that will be deposited with, or on behalf of, a depository identified in the applicable prospectus supplement relating to such series. Global securities, if any, issued in the United States are expected to be deposited with The Depository Trust Company, or DTC, as depository. We may issue global securities in either registered or bearer form and in either temporary or permanent form. We will describe the specific terms of the depository arrangement with respect to a series of debt securities in the applicable prospectus supplement relating to such series. We expect that unless the applicable prospectus supplement provides otherwise, the following provisions will apply to depository arrangements.

All interests in global securities will be subject to the operations and procedures of the depository for such global securities or its nominee. We provide the following summaries of those operations and procedures solely for the convenience of investors. Once a global security is issued, we expect that the depository for such global security or its nominee will credit on its book-entry registration and transfer system the respective principal amounts of the individual debt securities represented by such global security to the accounts of participants that have accounts with such depository. Such accounts shall be designated by the underwriters, dealers or agents with respect to such debt securities or by us if we offer such debt securities directly. Ownership of beneficial interests in such global security will be limited to participants with the depository or persons that may hold interests through those participants.

We expect that, under procedures established by DTC, ownership of beneficial interests in any global security for which DTC is the depository will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee, with respect to beneficial interests of participants with the depository, and records of participants, with respect to beneficial interests of persons who hold through participants with the depository. Neither we nor the trustee will have any responsibility or liability for any aspect of the records of DTC or for maintaining, supervising or reviewing any records of DTC or any of its participants relating to beneficial ownership interests in the debt securities.

So long as the depository for a global security or its nominee is the registered owner of such global security, such depository or such nominee, as the case may be, will be considered the sole owner or holder of the debt securities represented by the global security for all purposes under the applicable indenture. Except as described below or in the applicable prospectus supplement, owners of beneficial interest in a global security will not be entitled to have any of the individual debt securities represented by such global security registered in their names, will not receive or be entitled to receive physical delivery of any such debt securities in definitive form and will not be considered the owners or holders thereof under the applicable indenture. Beneficial owners of debt securities evidenced by a global security will not be considered the owners or holders thereof under the applicable indenture for any purpose, including with respect to the giving of any direction, instructions or approvals to the trustee under the indenture. Accordingly, each person owning a beneficial interest in a global security with respect to which DTC is the depository must rely on the procedures of DTC and, if such person is not a participant with the depository, on the procedures of the participant through which such person owns its interests, to exercise any rights of a holder under the applicable indenture.

Payments of principal of, and any premium, or make-whole amount, and interest on, individual debt securities represented by a global security registered in the name of a depository or its nominee will be made to or at the direction of the depository or its nominee, as the case may be, as the registered owner of the global security under the applicable indenture. Under the terms of the applicable indenture, we and the trustee may treat the persons in whose name debt securities, including a global security, are registered as the owners thereof for the purpose of receiving such payments. Consequently, neither we nor the trustee have or will have any responsibility or liability for the payment of such amounts to beneficial owners of debt securities including principal, any premium, or make-whole amount, or interest. We believe, however, that it is currently the policy of DTC to immediately credit the accounts of relevant participants with such payments, in amounts proportionate to their respective holdings of beneficial interests in the relevant global security as shown on the records of DTC or its nominee. We also expect that payments by participants to owners of beneficial interests in such global security held through such participants will be governed by standing instructions and customary practices, as is the case with securities held for the account of customers in bearer form or registered in street name, and will be the responsibility of such participants. Redemption notices with respect to any debt securities represented by a global security will be sent to the depository or its nominee. If less than all of the debt securities of any series are to be redeemed, we expect the depository to determine the amount of the interest of each participant in such debt securities to be redeemed to be determined by lot. Neither we, the trustee, any paying agent nor the security registrar for such debt securities will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in the global security for such debt securities or for maintaining any records with respect thereto.

Neither we nor the trustee will be liable for any delay by the holders of a global security or the depository in identifying the beneficial owners of debt securities, and we and the trustee may conclusively rely on, and will be protected in relying on, instructions from the holder of a global security or the depository for all purposes. The rules applicable to DTC and its participants are on file with the SEC.

If a depository for any debt securities is at any time unwilling, unable or ineligible to continue as depository and we do not appoint a successor depository within 90 days, we will issue individual debt securities in exchange for the global security representing such debt securities. In addition, we may at any time and in our sole discretion, subject to any limitations described in the applicable prospectus supplement relating to such debt securities, determine not to have any of such debt securities represented by one or more global securities and in such event will issue individual debt securities in exchange for the global security or securities representing such debt securities. Individual debt securities so issued will be issued in denominations of \$1,000 and integral multiples of \$1,000.

The debt securities of a series may also be issued in whole or in part in the form of one or more bearer global securities that will be deposited with a depository, or with a nominee for such depository, identified in the applicable prospectus supplement. Any such bearer global securities may be issued in temporary or permanent form. The specific terms and procedures, including the specific terms of the depository arrangement, with respect to any portion of a series of debt securities to be represented by one or more bearer global securities will be described in the applicable prospectus supplement.

No Recourse

There is no recourse under any obligation, covenant or agreement in the applicable indenture or with respect to any security against any of our or our successor's past, present or future stockholders, employees, officers or directors.

Warrants

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series, from time to time. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from those securities.

If we issue warrants, they will be evidenced by warrant agreements or warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. We urge you to read the prospectus supplement related to any series of warrants we may offer, as well as the complete warrant agreement and warrant certificate that contain the terms of the warrants. If we issue warrants, forms of warrant agreements and warrant certificates relating to warrants for the purchase of common stock, preferred stock and debt securities will be incorporated by reference into the registration statement of which this prospectus is a part from reports we would subsequently file with the SEC.

EXPERTS

KCCW Accountancy Corp., an independent PCAOB registered public accounting firm, has audited the Company's consolidated balance sheets as of December 31, 2012 and 2011 and the related consolidated statements of operations, stockholders' equity and cash flows for the years then ended and since inception (April 30, 2009), which are incorporated by reference in this prospectus. The consolidated financial statements are included in reliance on the report of KCCW Accountancy Corp., given their authority as experts in accounting and auditing.

LEGAL MATTERS

Certain legal matters relating to the validity of the securities offered by this prospectus will be passed upon for us by Ropes & Gray LLP, San Francisco, California.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

The Company files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The Company's filings with the SEC are also available to the public at the SEC's Internet web site at <http://www.sec.gov>.

Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or document filed as an exhibit to the registration statement, each such statement being qualified in all respects by such reference.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows the Company to "incorporate by reference" the information that is filed by the Company with the SEC, which means that the Company can disclose important information to you by referring you to those documents. The documents incorporated by reference are:

1. The Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed with the SEC on March 28, 2013;
2. The Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2013, June 30, 2013 and September 30, 2013;
3. The Company's Current Reports on Forms 8-K filed with the SEC on January 4, 2013, February 25, 2013, February 28, 2013, March 13, 2013, May 9, 2013 (as amended August 15, 2013), October 4, 2013 and October 15, 2013;
4. The description of the Company's Common Stock contained in the registration statement on Form 8-A filed with the Commission on July 24, 2012 pursuant to Section 12 of the Exchange Act of 1934, as amended (the "Exchange Act"), including any amendment or report filed for the purpose of updating that description; and
5. All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, after the date of the original Registration Statement and prior to effectiveness of the registration statement of which this prospectus is a part, provided that all documents "furnished" by the Company to the SEC and not "filed" are not deemed incorporated by reference herein.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this registration statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this registration statement. Under no circumstances will any information filed under items 2.02 or 7.01 of Form 8-K be deemed to be incorporated by reference unless such Form 8-K expressly provides to the contrary.

The Company will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus incorporates. Requests should be directed to the Secretary at Atossa Genetics Inc., 1616 Eastlake Ave. East, Suite 510, Seattle, Washington, 98102, phone (800) 351-3902. You may also find these documents in the "Investor Relations" section of our website, www.atossagenetics.com. The information on our website is not incorporated into this prospectus.

ATOSSA GENETICS INC.

Units

PROSPECTUS

DAWSON JAMES SECURITIES, INC.

, 2014