ATOSSA GENETICS INC
Form 424B3
April 19, 2013
Filed pursuant to Rule 424(b)(3)

Registration No. 333-187770

***PROSPECTUS***

**ATOSSA GENETICS INC.**

**2,833,519 shares of Common Stock**

This prospectus covers the sale of an aggregate of 2,833,519 shares of our common stock, $0.001 par value per share (the " ***Common Stock*** "), by Aspire Capital Fund, LLC ("***Aspire Capital***" or the "***Selling Stockholder***").

The prices at which the Selling Stockholder may sell the shares of Common Stock will be determined by the prevailing market price for the shares or in negotiated transactions. We will not receive proceeds from the sale of the shares by the Selling Stockholder. However, we have received $1 million in gross proceeds, and in the future may receive up to $29 million in gross proceeds, from the sale of our Common Stock to the Selling Stockholder, pursuant to a common stock purchase agreement entered into with the Selling Stockholder on March 27, 2013 (the "***Purchase Agreement***").

The Selling Stockholder is an "underwriter" within the meaning of the Securities Act of 1933, as amended. We will pay the expenses of registering these shares, but all selling and other expenses incurred by the Selling Stockholder will be paid by the Selling Stockholder.

The Company's Common Stock is traded on the NASDAQ Capital Market under the symbol "ATOS". On April 17, 2013, the closing sale price of our Common Stock on the NASDAQ Capital Market was $9.59 per share. Our principal executive offices are located at 4105 E. Madison Street, Suite 320, Seattle, Washington 98112 and our telephone number is (206) 325-6086.

**Investing in our securities involves risks. You should carefully consider the risk factors beginning on page 10 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 April 18, 2013

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You should read this prospectus, any applicable prospectus supplement and the information incorporated by reference in this prospectus before making an investment in the securities of Atossa Genetics Inc. See "Where You Can Find Additional Information" on page 33 for more information. You should rely only on the information contained in or incorporated by reference in this prospectus or a prospectus supplement. The Company has not authorized anyone to provide you with different information. This document may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that information contained in this prospectus, or in any document incorporated by reference, is accurate only as of any date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that 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 versio 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;
- 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 engage third-party suppliers to manufacture the MASCT or Microcatheter System and its components at quantities and costs acceptable to us;
- our ability to satisfy ongoing Food and Drug Administration requirements for the MASCT 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;

- 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 and FedMed 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 Clarity Women's Health, a division of Diagnostic Test Group LLC, and its 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.

**PROSPECTUS SUMMARY**

*This summary highlights some information from this prospectus. It may not contain all the information important to making an investment decision. You should read the following summary together with the more detailed information regarding our Company and the securities being sold in this offering, including "Risk Factors" and other information incorporated by reference herein. 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, whether conducted through Atossa Genetics or its subsidiary and (3) the term "Common Stock" refers to shares of Atossa Genetics Inc.'s Common Stock and the term "stockholder(s)" refers to the holders of Common Stock or securities exercisable for Common Stock.*

**Our Business**

**Overview**

We are a healthcare company focused on the prevention of breast cancer through the commercialization of diagnostic medical devices and laboratory developed tests that can detect precursors to breast cancer, and through the research, development, and ultimate commercialization of treatments for pre-cancerous lesions and ductal carcinoma in situ, or DCIS.

Our leading diagnostic test, the ForeCYTE Breast Health Test, consists of a patented medical device that can collect samples of nipple aspirate fluid, or NAF, from the breast milk ducts, where, according to the National Cancer Institute, over 95% of breast cancers arise. These samples are processed at our wholly-owned National Reference Laboratory for Breast Health, which 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 microscopy for the presence of normal, pre-malignant, or malignant changes as determined by cytopathology and biomarkers that distinguish "usual" ductal hyperplasia, a benign condition, from atypical ductal hyperplasia, which may lead to cancer. These cytopathological results provide patients and physicians with information about the care path that should be followed, depending on the individual risk of future cancer as determined by the results. Our other diagnostic test is the ArgusCYTE Breast Health Test for breast cancer survivors. This is a blood sample test that provides information to help inform treatment options and to help monitor risk of recurrence. Other tests under development are the FullCYTE Breast Health Test and the NextCYTE Breast Cancer Test.

Additionally, we are conducting research on the treatment of these pre-cancerous cells and DCIS by using our patented and FDA-cleared microcatheters to deliver, directly into the milk ducts, pharmaceutical formulations that can be used to treat these conditions. 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.

We launched our commercial operations in late 2011 and, as of December 31, 2012, have enrolled and sold MASCT System kits or provided ArgusCYTE collection kits to 37 doctors and clinics as providers of the ForeCYTE and/or ArgusCYTE tests. We have received, processed, and reported the results to physicians from 1,664 NAF samples processed and reported with our ForeCYTE Test and 41 ArgusCYTE samples as of December 31, 2012. When we launched operations in December 2011, we did so as part of our field experience trial to collect information about the ease or difficulty of adoption of the ForeCYTE and ArgusCYTE tests in both mammography clinics and physicians' offices, the number of sales calls to receive the first orders, and the growth of sales of specimen collection kits on a monthly basis. We are using the data from this field experience trial to form our national marketing efforts as we scale up our commercial operations going forward.

For the year ended December 31, 2012, we generated $481,842 in revenue from the sale of our products and services and we incurred a net loss of $5,079,851. Through December 31, 2012 we had an accumulated deficit of approximately $9.7 million. As of the date of this prospectus, we expect that our existing resources to be sufficient to fund our planned operations for at least the next four months. However, to fund our operations for at least the next 12 months under our current business plan, we estimate that we will need between $4 million and $10 million of additional capital. 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 MASCT System and generating laboratory service revenue from our tests, and making short-term borrowings when needed. For example, we have the right under our Purchase Agreement with Aspire Capital Fund, LLC, or Aspire Capital, to sell to Aspire Capital during the three-year term of the agreement up to $29 million in Common Stock. The Aspire Capital registration statement may not remain effective and we cannot be certain that we will be able to sell Common Stock to Aspire Capital when necessary. If we are unable to raise the amount of capital we anticipate needing, from Aspire Capital or otherwise, we would be forced to curtail or cease operations.

In September 2012, we acquired the assets of Acueity Healthcare, Inc., which 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 Bioptome, the Acueity Medical Light Source, the Viaduct Microendoscope and accessories, and cash in the amount of $400,000. In January 2013, we announced the launch of our national sales effort of the ForeCYTE Breast Health test through Clarity Women's Health, a division of Diagnostic Test Group LLC, or Clarity, which together with its subdistributors has over 5,000 sales representatives calling on 33,000 obstetric-gynecologists. As of the date of this prospectus, we have entered into contracts with two reimbursement organizations, MultiPlan, Inc. and FedMed, Inc.

On March 27, 2013, we entered into the Purchase Agreement with the Selling Stockholder, which 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 $30 million of shares of our Common Stock over the three-year term of the agreement. Under the agreement, Aspire Capital purchased $1 million of our Common Stock on March 27, 2013 for $12 per share. Other terms and conditions of the Purchase Agreement, including our issuance of 250,000 shares to Aspire Capital as a commitment fee, are described below.

Our operations began in December 2008 around acquiring the MASCT System patent rights and assignments and the FDA clearance for marketing, which was completed in January 2009. We were incorporated in Delaware in April 2009. Our operations to date have consisted primarily of securing manufacturing for the MASCT and the Mammary Duct Microcatheter Systems, establishing our CLIA-certified laboratory, validating the laboratory developed tests we use in the ForeCYTE and ArgusCYTE tests, conducting research and development on the FullCYTE and NextCYTE tests, beginning the national launch of the ForeCYTE test and preparing for the commercialization of our products.

**Summary of Our Diagnostic Tests**

We currently offer two diagnostic tests and plan to offer two additional tests in 2013. The tests that we currently offer and that are in development consist of the following:

***ForeCYTE*** The ForeCYTE Breast Health Test, launched in December 2011, provides personalized information about the 10-year and lifetime risk of breast cancer for women between ages 18 and 73. It involves collecting a specimen of nipple aspirate fluid, or NAF, using our patented *Mammary Aspirate Specimen Cytology Test*, or MASCT, System (our MASCT device received 510(k) clearance from the FDA in 2003). The NAF specimen is collected by a physician and returned to our CLIA-certified laboratory. We study the patient's NAF specimen and use a proprietary molecular and cellular biomarker test that detects basal or luminal cells to identify the presence of atypical ductal hyperplasia, or ADH, which is considered a precursor to breast cancer. We then input these cytopathological test results, together with the patient's personal medical and reproductive history and family history, into a clinically-validated risk assessment algorithm that

calculates 10-year and lifetime risk of breast cancer and presents these results in one of three risk tiers developed by The National Comprehensive Cancer Network: Normal (<15% lifetime risk), Intermediate (15 – 20% lifetime risk), or High (>20% lifetime risk). The ForeCYTE Test results contain recommendations for care paths in each risk group and personalized information so that patients and healthcare providers can make more informed treatment decisions. The algorithm was developed from a Swedish registry of 158,041 individuals, in whom 3,257 cancers occurred, and was validated by E. Amir, D.G. Evans, A. Shenton, and others in an independent study of 3,150 women, 64 of whom developed breast cancer. The algorithm incorporates family history, personal reproductive history, and the presence or absence of usual ductal hyperplasia, or UDH (which is benign), ADH (which is pre-malignant), or malignant changes. The present methods used by pathologists to analyze traditional biopsy specimens, i.e., microscopy and, when needed, immunohistochemistry, are the same methods used to analyze ForeCYTE specimens and would be expected to achieve similar results for patients with similar medical conditions. Halo Healthcare, Inc., or Halo, also manufactures and sells a device which collects NAF samples and some of those samples have been sent to us for analysis and reporting using our ForeCYTE Test. Our growth strategy is to focus on the placement of our MASCT System at physician offices and to process samples sent to our laboratory from these placements and to offer to physician offices using the Halo device the opportunity to collect NAF samples with the MASCT System. We plan to continue to process NAF samples from physician offices using the Halo device.

***ArgusCYTE***

The ArgusCYTE Breast Health Test, launched in December 2011, provides information to help inform breast cancer treatment options and to help monitor potential recurrence. It involves collecting a blood specimen from a patient using our patented blood collection tube and submitting it to our CLIA-certified laboratory (our ArgusCYTE Breast Health Test blood collection tube was registered with the FDA in 2011 as a 510(k)-exempt device). It can monitor breast cancer distant recurrence by obtaining a “liquid biopsy” or blood sample, and analyzing it for the presence of circulating tumor cells, which can then be analyzed to determine the expression of ER/PR and Her2 in those cells, a predictor of the cancer’s sensitivity to existing treatment options. The presence of circulating tumor cells in the blood sample may serve as an early indicator of the recurrence of breast cancer and the data obtained from the ArgusCYTE sensitivity analysis may help physicians better select which treatment options to use with a particular patient. The ArgusCYTE test uses a proprietary blood collection tube to obtain a blood sample for shipment and analysis at our CLIA-certified laboratory. The supplier of the blood collection tube owns patents with respect to the tube, while we own patents concerning laboratory features utilized in the testing process. Because the ArgusCYTE test involves the collection of a blood sample to be analyzed for the presence of circulating tumor cells, there is no comparable method relating to the analysis of traditional biopsy specimens that could be used to achieve results similar to or better than those provided by our ArgusCYTE test.

***FullCYTE*** The FullCYTE Breast Health Test, which we intend to launch in 2013 and is currently in development, is designed to assess the individual breast ducts for pre-cancerous changes in women previously identified to be at high risk for breast cancer. It involves collecting ductal lavage samples from each of the 5 to 7 individual breast milk ducts using our patented Mammary Ductal Microcatheter System (our Microcatheter System received 510(k) clearances from the FDA in 1999 and 2000) and analyzing the samples by the same molecular and cellular biomarkers used in the ForeCYTE test described above. From these tests, we are able to ascertain which individual duct contains pre-malignant or malignant changes, which may allow the physician to better target treatment to the specific duct with the pre-malignant changes or malignant changes and therefore avoid side effects associated with systemic treatment. Traditional biopsies, involving invasive procedures in which tissue is removed surgically, typically cut across the natural anatomy of the breast ductal system, making subsequent intraductal treatment difficult or, in certain cases, impossible. The present methods used by pathologists to analyze traditional biopsy specimens, i.e., microscopy and, when needed, immunohistochemistry, are the same methods used to analyze FullCYTE specimens and would be expected to achieve similar results for patients with similar medical conditions.

***NextCYTE*** The NextCYTE Breast Cancer Test, which is in the prevalidation phase and which we intend to launch in 2013, is designed to profile breast cancer specimens for prediction of treatment outcomes and distant recurrence in women newly diagnosed with breast cancer. It involves using surgery specimens and advanced genome sequencing techniques to quantify and analyze the entire tumor genetic transcriptome, which represents all genes that are being actively expressed within the tumor. Because our NextCYTE test analyzes traditional biopsy specimens using advanced genome sequencing techniques, we believe that other present methods of analyzing traditional biopsy specimens would not achieve results similar to or better than results provided by our NextCYTE test and we expect that physicians will be able to use the information provided by the NextCYTE test to better customize treatment options for women, based on the genetic composition of the individual tumor. The NextCYTE Breast Cancer Test is intended to use microarray-based genome-wide transcriptome data from surgical breast cancer biopsy specimens to predict a patient's 10-year survival probability and response to treatment. The algorithm was created from 2,400 unique genome-wide microarrays and validated against a separate sample of over 1600 microarray data sets. A correct classification was obtained for over 85% of both estrogen receptor negative and positive tumors. We have signed a term sheet for the exclusive license of the intellectual property related to this algorithm and we expect to complete the license in the first half of 2013 and to complete validation of the test in our laboratory soon thereafter, with an intent to launch this product before year end 2013.

The Medicare reimbursement rates set forth in this prospectus are the 2012 rates, unless otherwise noted. These rates may be different than the 2013 rates.

**Our Diagnostic Tools**

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 Bioptome, 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. Following the launch of our four diagnostic tests in the U.S., we will then begin to allocate human and financial resources to further develop and ultimately commercialize these medical devices. 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 late 2013. 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 the asset purchase, would not delay the expected development of these diagnostic tools or that we will ultimately be successful selling these tools.

We may not, however, achieve commercial market acceptance of any of our products and services. We must first demonstrate to physicians and other healthcare professionals the benefits of our tests and the MASCT System for their practice and these physicians and healthcare professionals may be reluctant to introduce new services into their practice due to uncertainty regarding reliability of the results of a new product or the learning curve associated with adoption of new services and techniques. Moreover, if third-party payors continue to refuse to cover the cost of collection of the NAF sample, whether from our MASCT System or competitors' NAF collection devices, physicians may be less likely to recommend or use our products and services if the cost of performing a particular test will not be reimbursed. Even if we are successful in convincing physicians and other healthcare professionals to utilize our tests and services, we must obtain adequate capital to fund our operations until we become profitable and we may not be able to do so. Additionally, we have no prior experience with commercializing any products or services and will need to create an infrastructure to scale operations for commercialization, including hiring experienced personnel (including anatomic pathologists, cytologists, histotechnologists, skilled laboratory and information technology staff, and sales representatives) and building a network of regional, specialty distributors, each with a staff of independent sales representatives who have experience in women's health products to target physicians and mammography clinics in the United States.

**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 (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.

We intend to build on these academic studies with a research program targeted initially as neoadjuvant therapy in DCIS and to begin preclinical studies during 2013. We may partner with a third party to provide the pharmaceutical for the program. However, we have not as of the date of this prospectus contracted with such a partner nor have we begun the process of applying for FDA approval of our Intraductal Treatment Research Program.

**Our Commercialization Strategy**

The ForeCYTE Test provides us with two revenue sources:

(i) revenue from the sale of the MASCT System device and patient kits to physicians, breast health clinics, mammography clinics and distributors; and

(ii) service revenue from the preparation and interpretation of the NAF samples sent to our laboratory for analysis.

The ArgusCYTE test provides only laboratory service revenue.

We offer each component of the MASCT System for sale separately. Our NAF sample collection devices are currently priced to physicians at approximately $299 per starter kit, which includes the pump device and five patient collections kits, and our patient collection kits are currently priced at approximately $35 per kit, however, our sale prices to our distributors are significantly below these prices and these prices are subject to change. During our initial launch, we plan to provide a rebate to the physician after the physician submits patient collection kits to our lab. The cytology and molecular diagnostics testing and analysis services are billed to federal and/or state health plans at the 2012 Medicare reimbursement rates of either $384 or $1,275 per patient, depending on the complexity of the analysis performed and at higher rates for patients covered by private insurance plans as is customary for our industry. We expect that the substantial majority of patients will be billed at the $384 rate and that we would perform the more complex tests, corresponding with a reimbursement rate of $1,275, for only those patients who have an initial test result that requires further analysis. Currently, Medicare and certain insurance carriers do not reimburse for the NAF collection procedure by our MASCT System or for other NAF collection device systems similar to our MASCT System, although Medicare and certain insurance carriers do reimburse for the laboratory analysis of the NAF sample. Although we have received reimbursement from insurance carriers and Medicare for our ForeCYTE test, any lack of Medicare or insurance coverage for the NAF collection procedure will require patients to bear the full costs of the NAF sample acquisition process used with the MASCT System, which may result in physicians and other healthcare professionals not adopting the MASCT System or recommending its use in patients. If this were to occur, we may be forced to reduce the price of the MASCT System, provide discounted pricing arrangements to secure sales, or we may not be

able to sell the product and services components of the MASCT System at acceptable margins, all of which could limit our ability to generate revenue.

During our initial marketing efforts we are not charging for our ArgusCYTE collection kits and we currently price the ArgusCYTE test at approximately $1,500. Because we do not currently have sufficiently reliable prior history of reimbursement with respect to the ArgusCYTE test, we currently do not recognize revenue until we have received reimbursement. We have billed the testing and analysis regarding the 41 ArgusCYTE samples processed through December 31, 2012 at $1,500 per patient. We have received reimbursement from insurance carriers for our ArgusCYTE test.

**Our National Launch Through Clarity**

In September 2012, we entered into a co-exclusive marketing agreement with Diagnostic Test Group LLC, or DTG, for the supply and distribution of the MASCT System, under the DTG Clarity brand. Under the terms of the agreement, DTG will purchase the MASCT System from us and will use its best efforts to establish product codes and contracted agreements for the sale and placement of the Clarity branded MASCT product line with the following distributors: Henry Schein, McKesson, PSS World Medical, Cardinal Health, VWR, Vaxserve, Mercedes Medical, Fisher, NDC members, Imco members, B&H Surgical, Marshall Medical and Cascade HealthCare Products. These distributors have collectively over 5,000 employee sales representatives and/or independent sales representatives selling their products to a target market of 33,000 obstetric-gynecologists in the United States.

We will coordinate the sales and marketing effort, plan, and budget with DTG, with us paying agreed expenses. We can terminate the agreement if DTG fails to achieve set minimum sales over a certain period of time. In consideration for DTG's marketing of the MASCT System, we have agreed to pay DTG a minimal cash fee for each test performed by us on MASCT samples sold by DTG, as well as warrants to purchase our Common Stock, which warrants are earned based on the annual number of ForeCYTE tests performed by the National Reference Laboratory for Breast Health, provided that the total number of warrants cannot exceed 1,000,000. These warrants have an exercise price equal to the fair market value of our Common Stock on the day of issuance.

In January 2013, we launched the ForeCYTE Breast Health Test with Clarity and its distributors. We may not be successful, however, in selling the Clarity branded MASCT product line and we may not achieve any level of commercial success from Clarity's efforts.

**Reimbursement Organizations**

As of the date of this prospectus, we have two contracts with third parties to facilitate the reimbursement process from insurers, one with MultiPlan, Inc. and another with FedMed, Inc. MultiPlan is a leading provider of healthcare cost management solutions for diagnostic laboratory testing involving our tests. Approximately 20% of Americans are covered by MultiPlan. The agreement allows us to participate in the MultiPlan, PHCS and PHCS Savility Networks.

In March of 2013, we entered into an agreement with FedMed, which is a National Provider Network and Healthcare Financial Services Organization. FedMed is one of the largest proprietary Preferred Provider Organization (PPO) networks in the U.S. for diagnostic laboratory testing. FedMed's network is comprised of over 550,000 total providers, including 4,000 hospitals and more than 60,000 ancillary facilities, serving over 40 million Americans.

Our agreements with MultiPlan and FedMed will give their participating providers and their patients greater access to our tests, including the ForeCYTE and ArgusCYTE Breast Health Tests. We anticipate that the agreements with MultiPlan and FedMed will help ensure that more doctors and their patients have access to the ForeCYTE and ArgusCYTE Breast Health Tests and that patients will receive insurance reimbursement for the laboratory costs associated with these tests.

Our agreements with MultiPlan and FedMed provide that reimbursement will be provided to us at a prescribed rate when insurers agree to reimburse for the ForeCYTE and ArgusCYTE Breast Health Tests. The prescribed rates of reimbursement are within the range of reimbursement that we have historically received. Our agreements do not, however, ensure that each test performed will be deemed medically necessary and ultimately reimbursed by insurers as the insurers may still determine the medical necessity of each test on a case-by-case basis. Our strategy is to contract with additional reimbursement organizations and insurers.

**Risk Factors**

Our business is subject to numerous risks as discussed more fully in the section entitled "Risk Factors" beginning on page 10. Principal risks of our business include, but are not limited to, the following:

- our existing capital resources may only be sufficient for the next four to twelve months and as a result we may face issues related to a lack of funding;
- we will need significant additional capital to execute our business strategy as currently contemplated and additional capital maybe 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;
- the MASCT System and other risk assessment tools, diagnostic tests and tools and other predictive and personalized medicine products that we may develop may never achieve significant commercial market acceptance;
- we are dependent on the commercial success of the MASCT System and the ForeCYTE and ArgusCYTE Tests;
- we may not be successful in commercializing the MASCT System because physicians and clinicians may be slow to adopt our product and, even if commercialized, the fees we receive for our products and services may be significantly lower than currently expected;
- additional shares becoming available for sale on the market, for example because of expiration of the lock-up agreement with our stockholders entered into in connection with our initial public offering or 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;
- our ability to commercialize the MASCT System may be limited because Medicare and certain insurance carriers are not expected to provide reimbursement for the NAF sample collections which are necessary for our tests (even though Medicare and certain insurance carriers do provide reimbursement for the laboratory analysis of the collected NAF samples through our ForeCYTE and ArgusCYTE tests); and
- we may not be able to hire, train or maintain the independent sales representatives and build the distributorship arrangements necessary to market and sell the MASCT System and our services as planned.

**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 4105 East Madison Street, Suite 320, Seattle, Washington 98112, and our telephone number is (206) 325-6086. 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**

| | |
|---|---|
| **Common stock covered by this Prospectus:** | Up to 2,833,519 shares of Common Stock, including 333,333 shares currently outstanding. |
| **Common stock outstanding as of March 31, 2013:** | 14,508,019 shares, including 333,333 shares issued to Aspire Capital on March 27, 2013. |
| **Use of proceeds:** | Aspire Capital will receive all of the proceeds from the sale of the shares offered for sale by it under this prospectus. We will not receive proceeds from the sale of the shares by Aspire Capital. However, we may receive up to $30 million in gross proceeds from the sale of our Common Stock to Aspire Capital (including $1 million of shares sold to Aspire Capital on March 27, 2013) under the Purchase Agreement described below, which we currently intend to use for working capital and general corporate purposes. See "Use of Proceeds." |
| **Risk factors:** | The shares offered hereby involve a high degree of risk. See "Risk Factors" beginning on page 10. |
| **Dividend policy:** | We currently intend to retain any future earnings to fund the development and growth of our business. Therefore, we do not currently anticipate paying cash dividends on our Common Stock. |
| **Trading Symbol:** | Our Common Stock currently trades on the NASDAQ Capital Market under the symbol "ATOS". |

**Our Purchase Agreement with Aspire Capital Fund, LLC**

On March 27, 2013, we entered into a purchase agreement, or the "Purchase Agreement," with Aspire Capital Fund, LLC, or Aspire Capital, which 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 $30 million of shares of our Common Stock over the three-year term of the agreement. In consideration for entering into the Purchase Agreement, concurrently with the execution of the Purchase Agreement, we issued to Aspire Capital 250,000 shares of our Common Stock, or the "Commitment Shares," as a commitment fee. Upon execution of the Purchase Agreement, Aspire Capital purchased 83,333 shares on March 27, 2013 for $1 million, or the "Initial Purchase Shares." Other terms and conditions of the Purchase Agreement are described below.

Concurrently with entering into the Purchase Agreement, we also entered into a registration rights agreement with Aspire Capital, or the "Registration Rights Agreement." The Registration Rights Agreement provides that we will file one or more registration statements, as necessary, to register under the Securities Act, the sale of the shares that have been and may be issued to Aspire Capital under the Purchase Agreement. We agreed to file an initial registration statement registering the sale of the shares by Aspire Capital with the Securities and Exchange Commission, or SEC, within 10 business days of entering into the Purchase Agreement with Aspire Capital. We further agreed to keep the

registration statement effective and to indemnify Aspire Capital for liabilities in connection with the sale of the shares under the terms of the Registration Rights Agreement.

As of March 31, 2013, there were 14,508,019 shares of our Common Stock outstanding, including the Initial Purchase Shares and the Commitment Shares, but excluding the 2,500,186 shares offered that may be sold to Aspire Capital pursuant to the Purchase Agreement. If all of the 2,833,519 shares of our Common Stock offered hereby were issued and outstanding as of the date hereof, such shares would represent approximately 16.7% of the total Common Stock outstanding or approximately 23.6% of the non-affiliate shares of Common Stock outstanding as of March 31, 2013. The number of shares of our Common Stock ultimately offered for sale by Aspire Capital is dependent upon the number of shares purchased by Aspire Capital under the Purchase Agreement.

Pursuant to the Purchase Agreement and the Registration Rights Agreement, we are registering under the Securities Act 2,833,519 shares of our Common Stock, which includes the Commitment Shares and the Initial Purchase Shares that have already been issued to Aspire Capital, as well as an additional 2,500,186 shares of Common Stock that we may issue to Aspire Capital. All 2,833,519 shares of Common Stock are being offered pursuant to this prospectus.

As described in more detail below, generally under the Purchase Agreement we have two ways we can elect to sell shares of Common Stock to Aspire Capital on any business day we select: (1) through a regular purchase of up to 100,000 shares (but not to exceed $400,000) at a known price based on the market price of our Common Stock prior to the time of each sale, and (2) through a volume-weighted average price, or VWAP, purchase of a number of shares up to 30% of the volume traded on the purchase date at a price equal to the lesser of the closing sale price or 95% of the VWAP for such purchase date.

On April 17, 2013, all of the conditions to commencement under the Purchase Agreement were met. Therefore, on any business day on which the closing sale price of our Common Stock equals or exceeds $2.00 per share, over the three-year term of the Purchase Agreement, we have the right, in our sole discretion, to present Aspire Capital with a purchase notice directing Aspire Capital to purchase up to 100,000 shares of our Common Stock per business day; however, no sale pursuant to such purchase notice may exceed $400,000 per business day. The purchase price per share is the lower of (i) the lowest sale price for our Common Stock on the purchase date or (ii) the arithmetic average of the three lowest closing sale prices for our Common Stock during the 12 consecutive business days ending on the business day immediately preceding the purchase date. The applicable purchase price will be determined prior to delivery of any purchase notice.

In addition, on any date on which we have submitted a purchase notice to Aspire Capital in the amount of 100,000 shares, we also have the right, in our sole discretion, to present Aspire Capital with a volume-weighted average price purchase notice, or a "VWAP Purchase Notice," directing Aspire Capital to purchase an amount of our Common Stock equal to a percentage (not to exceed 30%) of the aggregate shares of Common Stock traded on the next business day subject to a maximum number of shares determined by us. The purchase price per share pursuant to such VWAP Purchase Notice shall be generally the lower of (i) the closing sale price on the purchase date and (ii) 95% of the VWAP of our Common Stock traded on the NASDAQ Capital Market on the purchase day.

The number of shares covered by, and the timing of, each purchase notice are determined by us, at our sole discretion. We may deliver multiple purchase notices to Aspire Capital from time to time during the term of the Purchase Agreement, so long as the most recent purchase has been completed. There are no trading volume requirements or other restrictions under the Purchase Agreement. Aspire Capital has no right to require any sales from us, but is obligated to make purchases as directed in accordance with the Purchase Agreement.

The Purchase Agreement contains customary representations, warranties, covenants, closing conditions and indemnification and termination provisions. The Purchase Agreement may be terminated by us at any time, at our discretion, without any cost or penalty. Aspire Capital has covenanted not to cause or engage in any manner whatsoever, any direct or indirect short selling or hedging of our Common Stock. We did not pay any additional amounts to reimburse or otherwise compensate Aspire Capital in connection with the transaction other than the Commitment Shares. There are no limitations on use of proceeds, financial or business covenants, restrictions on future financings, rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement. Dawson James Securities, Inc. acted as our placement agent in connection with the transaction and we agreed to pay Dawson James a cash fee equal to 3% of proceeds from any sales of shares to Aspire Capital and a four-year warrant to purchase a number of shares equal to 3% of the total shares actually sold to Aspire Capital. The warrant may not be exercised on a cashless basis.

Our gross proceeds will depend on the purchase prices and the frequency of sales of shares to Aspire Capital; *provided, however,* that the maximum aggregate proceeds from sales of shares, including the Initial Purchase Shares, is $30 million. Our delivery of purchase notices will be made subject to market conditions, in light of our anticipated capital needs from time to time and under the limitations contained in the Purchase Agreement. We expect

to use proceeds from sales of shares for general corporate purposes and working capital requirements.

The issuance of the all shares to Aspire Capital under the Purchase Agreement is exempt from registration under the Securities Act, pursuant to the exemption for transactions by an issuer not involving any public offering under Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated thereunder.

**RISK FACTORS**

A purchase of our shares of Common Stock is an investment in our securities and involves a high degree of risk. You should carefully consider the risks and uncertainties and all other information contained in or incorporated by reference in this prospectus, including the risks and uncertainties discussed under "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2012. All of these risk factors are incorporated by reference herein in their entirety. If any of these risks actually occur, our business, financial condition and results of operations would likely suffer. In that case, the market price of the Common Stock could decline, and you may lose part or all of your investment in our company. Additional risks of which we are not presently aware or that we currently believe are immaterial may also harm our business and results of operations.

**USE OF PROCEEDS**

The Selling Stockholder will receive all of the proceeds from the sale of the shares offered for sale by it under this prospectus. We will not receive proceeds from the sale of the shares by the Selling Stockholder. However, we may receive up to an aggregate of $30 million in proceeds from the sale of our Common Stock to the Selling Stockholder under the Purchase Agreement (including the $1 million we already received upon the Selling Stockholder's purchase of 83,333 shares of our Common Stock on March 27, 2013). We will bear all reasonable expenses incident to the registration of the shares under federal and state securities laws other than expenses incident to the delivery of the shares to be sold by the Selling Stockholder. Any transfer taxes payable on these shares and any commissions and discounts payable to underwriters, agents, brokers or dealers will be paid by the Selling Stockholder.

Assuming the sale by us of all $30 million of shares of our Common Stock to the Selling Stockholder and estimated expenses of $1 million, the total net proceeds to us under the Purchase Agreement would be $29 million, which we currently intend to use for general corporate purposes, including capital expenditures, the advancement of NextCYTE, FullCYTE and our intraductal treatment program and to meet working capital needs. The amounts and timing of the expenditures will depend on numerous factors, such as the timing and progress the national launch of ForeCYTE and research and development efforts. We expect from time to time to evaluate the acquisition of businesses, products and technologies for which a portion of the net proceeds may be used, although we currently are not planning or negotiating any such transactions. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of shares to the Selling Stockholder. Accordingly, we will retain broad discretion over the use of these proceeds, if any.

**DIVIDEND POLICY**

We have has not declared any dividends and do not anticipate that we will declare dividends in the foreseeable future; rather, we intend to retain any future earnings for the development of the business. Payment of future cash dividends, if any, will be at the discretion of our Board of Directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs, outstanding indebtedness and plans for expansion and restrictions imposed by lenders, if any.

**SELLING STOCKHOLDER**

We have included in this prospectus 333,333 shares of Common Stock issued to the Selling Stockholder, Aspire Capital Fund, LLC, on March 27, 2013 and up to an additional 2,500,186 shares of Common Stock that may be issued in the future to Aspire Capital pursuant to the Purchase Agreement. Prior to entering into the Purchase Agreement, Aspire Capital did not own any shares of our Common Stock.

The following table sets forth certain information regarding the Selling Stockholder and the shares of Common Stock beneficially owned by it, which information is available to us as of March 31, 2013. The Selling Stockholder may offer shares under this prospectus from time to time and may elect to sell none, some or all of the shares set forth below. As a result, we cannot estimate the number of shares of Common Stock that the Selling Stockholder will beneficially own after termination of sales under this prospectus. However, for the purposes of the table below, we have assumed that the Selling Stockholder will sell all shares covered by this prospectus.

| Selling Stockholder | Shares Beneficially Owned Before Offering (1) | Percentage of Outstanding Shares Beneficially Owned Before Offering | Shares to be Sold in the Offering | Shares Beneficially Owned After Offering | Percentage of Outstanding Shares Beneficially Owned After Offering |
|---|---|---|---|---|---|
| Aspire Capital Fund, LLC (2) | 333,333 (3) | 2.30 % | 2,833,519 | 0 | 0 |

(1) Beneficial ownership is determined in accordance with the rules and regulations of the SEC. In general, a person is deemed to be the beneficial owner of (i) any shares of our Common Stock over which such person has sole or shared voting power or investment power, plus (ii) any shares which such person has the right to acquire beneficial ownership of within 60 days, whether through the exercise of options, warrants or otherwise. The percentage of ownership set forth above assumes the sale by the Company to Aspire Capital of all shares being offered pursuant to this prospectus and is based on 14,508,019 shares of our Common Stock outstanding as of March 31, 2013, including the 333,333 shares previously issued to Aspire Capital pursuant to the Purchase Agreement, together with securities exercisable or convertible into shares of Common Stock within 60 days of the date hereof for the Selling Stockholder.

(2) As of the date of the Purchase Agreement, Aspire Capital beneficially owned no shares of Common Stock of the Company. Steven G. Martin, Erik J. Brown and Christos Komissopoulos, the principals of Aspire Capital, are deemed to be beneficial owners of all of the shares of Common Stock owned by Aspire Capital. Although Messrs. Martin, Brown and Komissopoulos are deemed to have shared voting and investment power over the shares being offered under the prospectus filed with the SEC in connection with the transactions contemplated under the Purchase Agreement, each disclaims beneficial ownership of these shares except to the extent of their pecuniary interest therein. Aspire Capital is not a licensed broker dealer or an affiliate of a licensed broker dealer.

(3) As of the date hereof, 333,333 shares of our Common Stock have been acquired by Aspire Capital under the Purchase Agreement. The Company may elect in its sole discretion to sell to Aspire Capital up to an additional number of shares under the Purchase Agreement equal to $29 million in value, but Aspire Capital does not presently beneficially own those shares as determined in accordance with the rules of the SEC.

**THE ASPIRE CAPITAL TRANSACTION**

**General**

On March 27, 2013, we entered into the Purchase Agreement, which 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 $30 million of shares of our Common Stock over the three-year term of the Purchase Agreement. In consideration for entering into the Purchase Agreement, concurrently with the execution of the Purchase Agreement, we issued to Aspire Capital the Commitment Shares and Aspire Capital purchased the Initial Purchase Shares. Concurrently with entering into the Purchase Agreement, we also entered into the Registration Rights Agreement, in which we agreed to file one or more registration statements, as permissible and necessary to register under the Securities Act, the sale of the shares of our Common Stock that have been and may be issued to Aspire Capital under the Purchase Agreement.

As of March 31, 2013, there were 14,508,019 shares of our Common Stock outstanding, including the Initial Purchase Shares and Commitment Shares, but excluding the additional 2,500,186 shares offered pursuant to this prospectus that may be sold to Aspire Capital pursuant to the Purchase Agreement. If all of the 2,833,519 shares of our Common Stock offered hereby were issued and outstanding as of the date hereof, such shares would represent approximately 16.7% of the total Common Stock outstanding or approximately 23.6% of the non-affiliate shares of Common Stock outstanding as of March 31, 2013. The number of shares of our Common Stock ultimately offered for sale by Aspire Capital is dependent upon the number of shares purchased by Aspire Capital under the Purchase Agreement.

Pursuant to the Purchase Agreement and the Registration Rights Agreement, we are registering under the Securities Act 2,833,519 shares of our Common Stock, which includes the Commitment Shares and the Initial Purchase Shares that have already been issued to Aspire Capital, as well as an additional 2,500,186 shares of Common Stock that we may issue to Aspire Capital. All 2,833,519 shares of Common Stock are being offered pursuant to this prospectus.

Under the Purchase Agreement, we have the right, but not the obligation, to sell more than the 2,833,519 shares of Common Stock offered by this prospectus. The Purchase Agreement provides that the number of shares that may be sold pursuant to the Purchase Agreement shall be limited to 2,833,519, or the "Exchange Cap," which represents 19.99% of our outstanding shares as of March 27, 2013, unless shareholder approval or an exception pursuant to the rules of the NASDAQ Capital Market is obtained to issue more than 19.99%. This limitation shall not apply if, at any time the Exchange Cap is reached and at all times thereafter, the average price paid for all shares issued and sold under the Purchase Agreement is equal to or greater than $9.55, which was the closing sale price of our Common Stock on March 27, 2013. We are not required or permitted to issue any shares of Common Stock under the Purchase Agreement if such issuance would breach our obligations under the rules or regulations of the NASDAQ Capital Market. If we elect to sell more than the 2,833,519 shares of Common Stock offered hereby, we must first obtain the approval of our stockholders to do so, if necessary, and register under the Securities Act the sale of any additional shares we may elect to sell to Aspire Capital before we can put such additional shares to Aspire Capital under the

Purchase Agreement.

On April 17, 2013, all of the conditions to commencement under the Purchase Agreement were met. Therefore, on any day that the closing sales price of our shares equals or exceeds $2.00 per share, we have the right, in our sole discretion, to present Aspire Capital with a Purchase Notice, directing Aspire Capital (as principal) to purchase up to 100,000 shares of our Common Stock per business day, up to $29 million of our Common Stock in the aggregate at a Purchase Price calculated by reference to the prevailing market price of our Common Stock over a preceding 12-business day period (as more specifically described below); however, no sale pursuant to a Purchase Notice may exceed $400,000 per trading day.

In addition, on any date on which we submit a Purchase Notice to Aspire Capital in an amount equal to 100,000 shares, we also have the right, in our sole discretion, to present Aspire Capital with a VWAP Purchase Notice directing Aspire Capital to purchase an amount of stock equal to up to 30% of the aggregate shares of the Company's Common Stock traded on the NASDAQ Capital Market on the purchase date, subject to the VWAP Purchase Share Volume Maximum and the VWAP Minimum Price Threshold. The VWAP Purchase Price is calculated by reference to the prevailing market price of our Common Stock (as more specifically described below).

The Purchase Agreement provides that in no event will any shares of Common Stock be sold at a Purchase Price less than $2.00, or the "Floor Price,.". This Floor Price and the respective prices and share numbers in the preceding paragraphs shall be appropriately adjusted for any reorganization, recapitalization, non-cash dividend, stock split, reverse stock split or other similar transaction. Additionally, the Purchase Agreement provides that the Company and Aspire Capital shall not effect any sales under the Purchase Agreement if such shares proposed to be issued and sold, when aggregated with all other shares of the Company's Common Stock that Aspire Capital and its affiliates beneficially own, would result in Aspire Capital and its affiliates beneficially owning more than 19.99% of the Company's then issued and outstanding Common Stock.

There are no trading volume requirements or restrictions under the Purchase Agreement, and we will control the timing and amount of any sales of our Common Stock to Aspire Capital. Aspire Capital has no right to require any sales by us, but is obligated to make purchases from us as we direct in accordance with the Purchase Agreement. There are no limitations on use of proceeds, financial or business covenants, restrictions on future financings, rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement. The Purchase Agreement may be terminated by us at any time, at our discretion, without any penalty or cost to us. The rights and obligations of Aspire Capital under the Purchase Agreement are not assignable or transferable.

**Purchase of shares under the Purchase Agreement**

Under the Purchase Agreement, on any trading day selected by us on which the closing price of our Common Stock is not less than $2.00 per share, we may direct Aspire Capital to purchase up to 100,000 shares of our Common Stock per trading day so long as sales pursuant to such Purchase Notice do not exceed $400,000 per trading day. The Purchase Price of such shares is equal to the lesser of:

- the lowest sale price of our Common Stock on the purchase date; or
- the arithmetic average of the three lowest closing sale prices for our Common Stock during the twelve consecutive trading days ending on the trading day immediately preceding the purchase date.

In addition, on any date on which we submit a Purchase Notice to Aspire Capital in an amount equal to 100,000 shares we also have the right to direct Aspire Capital to purchase an amount of stock equal to up to 30% of the aggregate shares of the Company's Common Stock traded on the NASDAQ Capital Market on the purchase date, subject to the VWAP Purchase Share Volume Maximum and the VWAP Minimum Price Threshold, which is equal to the greater of (a) 90% of the closing price on the NASDAQ Capital Market on the business day immediately preceding the VWAP Purchase Date or (b) such higher price as set forth by the Company in the VWAP Purchase Notice. The VWAP Purchase Price of such shares is the lower of:

- the closing sale price on the VWAP Purchase Date; or
- 95% of the volume-weighted average price for our Common Stock traded on the NASDAQ Capital Market during normal trading hours:

a. on the VWAP Purchase Date, if the aggregate shares traded on the NASDAQ Capital Market have not exceeded the VWAP Purchase Share Volume Maximum; or

b. the portion of the VWAP Purchase Date until such time as the sooner to occur of (i) the time at which the aggregate shares traded on the NASDAQ Capital Market has exceeded the VWAP Purchase Share Volume Maximum or (ii) the time at which the sale price of the Common Stock falls below the VWAP Minimum Price Threshold.

The Purchase Price will be adjusted for any reorganization, recapitalization, non-cash dividend, stock split, reverse stock split or other similar transaction occurring during the period(s) used to compute the Purchase Price. We may deliver multiple Purchase Notices and VWAP Purchase Notices to Aspire Capital from time to time during the term of the Purchase Agreement, so long as the most recent purchase has been completed.

**Minimum Share Price**

Under the Purchase Agreement, the Company and Aspire Capital may not effect any sales of shares of our Common Stock on any trading day that the closing sale price of our Common Stock is less than $2.00 per share.

**Compliance with the NASDAQ Capital Market Price**

The Purchase Agreement provides that the number of shares that may be sold pursuant to the Purchase Agreement shall be limited to 2,833,519, or the Exchange Cap, which represents 19.99% of our outstanding shares as of March 27, 2013, unless shareholder approval or an exception pursuant to the rules of the NASDAQ Capital Market is obtained to issue more than 19.99%, to be in compliance with the applicable listing maintenance rules of the NASDAQ Capital Market. This limitation shall not apply if, at any time the Exchange Cap is reached and at all times thereafter, the average price paid for all shares issued and sold under the Purchase Agreement is equal to or greater than $9.55, which was the closing sale price of our Common Stock on March 27, 2013. We are not required or permitted to issue any shares of Common Stock under the Purchase Agreement if such issuance would breach our obligations under the rules or regulations of the NASDAQ Capital Market.

**Beneficial Ownership Limitation**

Under the Purchase Agreement, we and Aspire Capital may not effect any sales of shares of our Common Stock if such shares proposed to be issued and sold, when aggregated with all other shares of our Common Stock beneficially owned by Aspire Capital and its affiliates, would result in the beneficial ownership by Aspire Capital and its affiliates of more than 19.99% of our then issued and outstanding shares of Common Stock.

**Events of Default**

Generally, Aspire Capital may terminate the Purchase Agreement upon the occurrence of any of the following events of default:

- the effectiveness of any registration statement that is required to be maintained effective pursuant to the terms of the Registration Rights Agreement between us and Aspire Capital lapses for any reason (including, without limitation, the issuance of a stop order) or is unavailable to Aspire Capital for sale of our shares of Common Stock, and such lapse or unavailability continues for a period of ten consecutive business days or for more than an aggregate of thirty business days in any 365-day period, which is not in connection with a post-effective amendment to any such registration statement; provided, however, that in connection with any post-effective amendment to such registration statement that is required to be declared effective by the SEC, such lapse or unavailability may continue for a period of no more than twenty consecutive business days, which such period shall be extended for an additional thirty business days if we receive a comment letter from the SEC in connection therewith;

- the suspension from trading or failure of our Common Stock to be listed on a Principal Market (as defined in the Purchase Agreement) for a period of three (3) consecutive business days;

- the delisting of our Common Stock from the NASDAQ Capital Market, provided our Common Stock is not immediately thereafter trading on the New York Stock Exchange, the NASDAQ Global Select Market, the NASDAQ Global Market, the NYSE MKT or the OTCOB or OTCOX market places of the OTC markets;

- our transfer agent's failure to issue to Aspire Capital shares of our Common Stock which Aspire Capital is entitled to receive under the Purchase Agreement within five business days after an applicable purchase date;

- any breach by us of the representations, warranties, covenants or other term or condition contained in the Purchase Agreement or any related agreements that would reasonably be expected to have a material adverse effect except, in the case of a breach of a covenant which is reasonably curable, only if such breach continues for a period of at least five business days;

- if at any time the issuance of shares of Common Stock upon the submission of a Purchase Notice or VWAP Purchase Notice under the Purchase Agreement would result in the issuance of an aggregate of number of shares of Common Stock that would exceed the number of shares of Common Stock that we may issue under this agreement without breaching our obligations under the rules or regulations of the NASDAQ Capital Market;

- if we become insolvent or are generally unable to pay our debts as they become due; or

- any participation or threatened participation in insolvency or bankruptcy proceedings by or against us.

**Our Termination Rights**

The Purchase Agreement may be terminated by us at any time, at our discretion, without any cost to us.

**No Short-Selling or Hedging by Aspire Capital**

Aspire Capital has agreed that neither it nor any of its agents, representatives and affiliates shall engage in any direct or indirect short-selling or hedging, which establishes a net short position with respect to our Common Stock during any time prior to the termination of the Purchase Agreement.

**Effect of Performance of the Purchase Agreement on Our Stockholders**

The Purchase Agreement does not limit the ability of Aspire Capital to sell any or all of the 2,833,519 shares registered in this offering. It is anticipated that shares registered in this offering will be sold over a period of up to approximately three years from the date we entered into the Purchase Agreement. The sale by Aspire Capital of a significant amount of shares registered in this offering at any given time could cause the market price of our Common Stock to decline or to be highly volatile. Sales to Aspire Capital by us pursuant to the Purchase Agreement also may result in dilution to the interests of other holders of our Common Stock. However, we have the right to control the timing and amount of sales of our shares to Aspire Capital, and the Purchase Agreement may be terminated by us at any time at our discretion without any penalty or cost to us.

**Amount of Potential Proceeds to be Received under the Purchase Agreement**

In connection with entering into the Purchase Agreement, we authorized the sale to Aspire Capital of up to $30 million of shares of our Common Stock. However, we estimate that we will sell no more than 2,833,519 shares to Aspire Capital under the Purchase Agreement (inclusive of the Commitment Shares and Initial Purchase Shares), all of which are included in this offering. Subject to any required approval by our Board of Directors and our stockholders, we have the right but not the obligation to issue more than the 2,833,519 shares included in this prospectus to Aspire Capital under the Purchase Agreement. In the event we elect to issue more than 2,833,519 shares under the Purchase Agreement, we will be required to file a new registration statement and have it declared effective by the SEC. The number of shares ultimately offered for sale by Aspire Capital in this offering is dependent upon the number of shares purchased by Aspire Capital under the Purchase Agreement. The following table sets forth the number and percentage of outstanding shares to be held by Aspire Capital after giving effect to the sale of shares of Common Stock issued to Aspire Capital covered by the registration statement of which this prospectus is a part at

varying purchase prices in addition to the Initial Purchase Shares and the Commitment Shares.

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| **Assumed Average Purchase Price of the Additional Shares Sold Under the Purchase Agreement** | Number of Additional Shares to be Sold (1) | Percentage of Outstanding Shares After Giving Effect to the Aspire Capital Transaction (2) | Proceeds from the Sale of Shares to Aspire Capital Under the Purchase Agreement |
|---|---|---|---|
| $ 2.00 | 2,500,186 | 14.70 % | $ 5,000,372 |
| $ 4.00 | 2,500,186 | 14.70 % | $ 10,000,744 |
| $ 6.00 | 2,500,186 | 14.70 % | $ 15,001,116 |
| $ 8.00 | 2,500,186 | 14.70 % | $ 20,001,488 |
| $ 10.00 | 2,500,186 | 14.70 % | $ 25,001,860 |
| $ 12.00 | 2,416,666 | 14.28 % | $ 29,000,000 |
| $ 14.00 | 2,071,428 | 12.49 % | $ 29,000,000 |

(1) Based on total aggregate sales of the lesser of (a) $29 million of shares of Common Stock and (b) the 2,500,186 additional Purchase Shares registered herein. Excludes the Commitment Shares and the Initial Purchase Shares.

(2) The denominator is based on 14,508,019 shares outstanding on March 31, 2013, plus the number of shares set forth in the adjacent column which we would have sold to Aspire Capital at the assumed price in the first column. The numerator is based on the number of shares which we would have sold under the Purchase Agreement at the corresponding assumed purchase price set forth in the first column and assuming a maximum of $29 million of shares are sold to Aspire Capital.

**PLAN OF DISTRIBUTION**

The shares may be sold or distributed from time to time by the Selling Stockholder directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. The sale of the shares offered by this prospectus may be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for the Common Stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;in privately negotiated transactions; or any combination of the foregoing.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the registration or qualification requirement is available and complied with.

The Selling Stockholder may also sell shares of Common Stock under Rule 144 promulgated under the Securities Act, if available, rather than under this prospectus. In addition, the Selling Stockholder may transfer the shares of Common Stock by other means not described in this prospectus.

Brokers, dealers, underwriters, or agents participating in the distribution of the shares as agents may receive compensation in the form of commissions, discounts, or concessions from the Selling Stockholder and/or purchasers of the Common Stock for whom the broker-dealers may act as agent. The Selling Stockholder has informed us that each such broker-dealer will receive commissions from Aspire Capital which will not exceed customary brokerage commissions.

The Selling Stockholder and its affiliates have agreed not to engage in any direct or indirect short selling or hedging of our Common Stock during the term of the Purchase Agreement.

The Selling Stockholder is an "underwriter" within the meaning of the Securities Act.

We have advised Selling Stockholder that while it is engaged in a distribution of the shares included in this prospectus it is required to comply with Regulation M promulgated under the Exchange Act. With certain exceptions, Regulation M precludes the Selling Stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the shares offered hereby this prospectus.

We may suspend the sale of shares by Aspire Capital pursuant to this prospectus for certain periods of time for certain reasons, including if the prospectus is required to be supplemented or amended to include additional material information.

This offering will terminate on the date that all shares offered by this prospectus have been sold by the Selling Stockholder.

**MANAGEMENT**

The following table sets forth information regarding the members of the Board of Directors of the Company and its executive officers as of the date of this prospectus:

**Executive Officers and Directors**

| Name | Age | Position(s) |
|---|---|---|
| Steven C. Quay, M.D., Ph.D. | 62 | Chairman of the Board of Directors, Chief Executive Officer and President |
| Kyle Guse | 49 | Chief Financial Officer, General Counsel and Secretary |
| Shu-Chih Chen, Ph.D. | 51 | Director, Chief Scientific Officer |
| John Barnhart | 56 | Director |
| Stephen Galli, M.D. | 66 | Director |
| Alexander Cross, Ph.D. | 81 | Director |
| H. Lawrence Remmel | 61 | Director |

The Company's bylaws provide that the number of directors authorized to serve on the Board of Directors of the Company may be established, from time to time, by action of the Board of Directors of the Company. Vacancies in the existing Board of Directors of the Company are filled by a majority vote of the remaining directors on the Board of Directors of the Company. Our Board of Directors is divided into three classes and directors serve for a three-year term until the third annual meeting following their election and until their respective successors have been elected and qualified or until death, resignation or removal. Dr. Quay and Mr. Barnhart are Class I directors (whose terms will expire on the date of the 2013 annual meeting), Dr. Cross and Dr. Galli are Class II directors (whose terms will expire on the date of the 2014 annual meeting), and Dr. Chen and Mr. Remmel are Class III directors (whose terms will expire on the date of the 2015 annual meeting). The Company's executive officers are appointed by and serve at the discretion of the Board of Directors of the Company.

Dr. Quay is the Chief Executive Officer and Chairman of the Board of Directors of the Company. Dr. Shu-Chih Chen is the Chief Scientific Officer and a director. Drs. Quay and Chen are husband and wife. They currently beneficially own a substantial minority of the outstanding voting securities of the Company.

***Steven C. Quay, M.D., Ph.D.*** Dr. Quay has served as Chief Executive Officer and Chairman of the Board of Directors of the Company since the Company was incorporated in April 2009. Prior to his work at the Company, Dr. Quay served as Chairman of the Board, President and Chief Executive Officer of MDRNA, Inc., a biotechnology company focused on the development and commercialization of RNAi-based therapeutic products, from August 2000 to May 2008, and as its Chief Scientific Officer until November 30, 2008 (MDRNA, Inc. was formerly known as Nastech Pharmaceutical Company Inc. and is currently known as Marina Biotech, Inc.). From December 2008 to

April 2009, Dr. Quay was involved in acquiring the Company's assets and preparing the Company's business plan. Dr. Quay is certified in Anatomic Pathology with the American Board of Pathology, completed both an internship and residency in anatomic pathology at the Massachusetts General Hospital, a Harvard Medical School teaching hospital, is a former faculty member of the Department of Pathology, Stanford University School of Medicine, and is a named inventor on 14 U.S. and foreign patents covering the MASCT System. He oversaw the clinical testing and regulatory filing of the MASCT device with the FDA that led to its ultimate marketing clearance. Including the patents for the MASCT System, Dr. Quay has a total of 76 U.S. patents, 108 pending patent applications and is a named inventor on patents covering five pharmaceutical products that have been approved by the FDA. Dr. Quay received an M.D. in 1977 and a Ph.D. in 1975 from the University of Michigan Medical School. He also received his B.A. degree in biology, chemistry and mathematics from Western Michigan University in 1971. Dr. Quay is a member of the American Society of Investigative Pathology, the Association of Molecular Pathology, the Society for Laboratory Automation and Screening and the Association of Pathology Informatics. He was selected to serve on the Company's Board of Directors because of his role as the founder of the Company and the inventor of the MASCT System, as well as his qualifications as a physician and the principal researcher overseeing the clinical and regulatory development of the MASCT System.

***Kyle Guse, Esq., CPA.*** Mr. Guse has served as Chief Financial Officer, General Counsel and Secretary since January 2013. His experience includes more than 20 years of counseling life sciences and other rapid growth companies through all aspects of finance, corporate governance, securities laws and commercialization. Mr. Guse has practiced law at several of the largest international law firms, including from January 2012 through January 2013 as a partner at Baker Botts LLP and, prior to that, from October 2007 to January 2012, as a partner at McDermott Will & Emery LLP. Before working at McDermott Will & Emery, Mr. Guse previously served as a partner at Heller Ehrman LLP. Mr. Guse began his career as an accountant at Deloitte & Touche and he is a licensed Certified Public Accountant in the state of California. Mr. Guse earned a B.S. in Business Administration and an M.B.A. from California State University, Sacramento, and a J.D. from Santa Clara University School of Law.

***Shu-Chih Chen, Ph.D.*** Dr. Chen has served as Chief Scientific Officer and director of the Company since the Company was incorporated in April 2009. Prior to joining the Company, Dr. Chen served as President of Ensisheim beginning in 2008, was founder and President of SC2Q Consulting Company from 2006 to 2008, and served as Head, Cell Biology, Nastech Pharmaceuticals Company, Inc. from 2002 to 2006. During 1995 and 1996, she was an Associate Professor at National Yang Ming University, Taipei, Taiwan, and served as the principal investigator of an NIH RO1 grant studying tumor suppression by gap junction protein connexin 43 at the Department of Molecular Medicine at Northwest Hospital before working in the research department at Nastech Pharmaceutical Company. She is named as an inventor on four patent applications related to cancer therapeutics. Dr. Chen received her Ph.D. degree in microbiology and public health from Michigan State University in 1992 and has published extensively on Molecular Oncology. She received her B.S. degree in medical technology from National Yang Ming University, Taipei, Taiwan in 1984. Dr. Chen was selected to serve on the Company's Board of Directors because of her qualifications in medical technology and as a professor and researcher in the field of cancer therapeutics.

***John Barnhart.*** Mr. Barnhart has served as a director of the Company since July 2009. He is the founder and has been the Managing Director of the Visconti Group, a management consulting group in Seattle, Washington, since November 2003. He held prior executive positions at The Walt Disney Company, Sony Pictures Entertainment, and Walt Disney Imagineering. He received a B.S. degree in engineering from California State University, Long Beach in 1983. Mr. Barnhart was selected to serve on the Company's Board of Directors because of his understanding and experience with development and marketing of consumer-oriented products and services.

***Stephen J. Galli, M.D.*** Dr. Galli has served as a director of the Company since July 2011. Dr. Galli is Chair of the Department of Pathology, Professor of Pathology and of Microbiology & Immunology and the Mary Hewitt Loveless, M.D., Professor, Stanford University School of Medicine, Stanford, California, and has served in these capacities since February 1999. Before joining Stanford, he was on the faculty of Harvard Medical School. He holds 13 U.S. patents and has over 340 publications. He is past president of the American Society for Investigative Pathology and current president of the Collegium Internationale Allergologicum. In addition to receiving awards for his research, he was recently recognized with the 2010 Stanford University President's Award for Excellence Through Diversity for his recruitment and support of women and underrepresented minorities at Stanford University. He received his B.A. degree in biology, magna cum laude, from Harvard College in 1968 and his M.D. degree from Harvard Medical School in 1973 and completed a residency in anatomic pathology at the Massachusetts General Hospital in 1977. Dr. Galli has been selected to serve on the Company's Board of Directors because of his qualifications as a professor and physician, and his specialized expertise as a pathologist.

***Alexander D. Cross, Ph.D.*** Dr. Cross has served as a director of the Company since July 2011. Dr. Cross has served on the board and as a member of the Audit, Compensation, and Nominating and Governance Committees of a number of public companies, including Marina Biotech, Inc. (formerly MDRNA, Inc. and, before that, Nastech Pharmaceutical Company Inc. from July 2005 through May 2009). Dr. Cross also served as Chairman of the Board and CEO of CytoPharm, Inc., a company engaged in the development of light-activated drugs for the treatment of various diseases, until August 2006. Dr. Cross has been a consultant in the fields of pharmaceuticals and biotechnology since January 1986 and has served as a principal of NDA Partners, LLC, a consulting firm that provides strategic advisory services for the development of medical products, since 2003. Previously, Dr. Cross served as President and CEO of Zoecon Corporation, a biotechnology company, from April 1983 to December 1985, and Executive Vice President and Chief Operating Officer from 1979 to 1983. Dr. Cross also previously held several corporate management positions at Syntex Corporation from 1961 through 1979. Dr. Cross holds 109 issued U.S. patents and is the author of 90 peer-reviewed publications. Dr. Cross received his B.Sc., Ph.D. and D.Sc. degrees from the University of Nottingham, England, and is a Fellow of the Royal Society of Chemistry. Dr. Cross has been selected to serve on the Company's Board of Directors because of his qualifications as a scientist, business executive and audit committee financial expert, and his prior experience as a director and committee member of public companies.

***H. Lawrence Remmel, Esq.*** Mr. Remmel served as a director of the Company since February 2012. He is currently a partner of the law firm Pryor Cashman LLP, located in New York City, where he chairs the Banking and Finance practice group. Mr. Remmel joined Pryor Cashman in 1988. His practice includes corporate and banking financings, issues relating to the Investment Company Act of 1940, and intellectual property and licensing issues, in particular in the biotechnology and biocosmeceutical areas. He was an associate of the law firm Reboul, MacMurray, Hewitt,

Maynard & Kristol from 1984 to 1988, and began his legal career at Carter, Ledyard & Milburn, where he was an associate from 1979 to 1984. He was admitted to the New York bar in 1980 and is a member of the New York State Bar Association. He received his J.D. from the Washington & Lee University School of Law in 1979 and his B.A. from Princeton University in 1975. Mr. Remmel has been selected to serve on the Company's Board of Directors because of his substantial experience as a corporate attorney advising biotechnology companies and his familiarity with the fiduciary duties and the regulatory requirements affecting publicly traded companies.

**Scientific Advisory Board**

The Company has established a Scientific Advisory Board to provide strategic resources to the Company's management and its Board of Directors. It is intended that the Company's scientific advisory board has knowledge in breast cancer, NAF, breast cancer biomarkers, and Next Generation Sequencing technologies. The Company expects to expand the size of the advisory board in the future. The members of the Scientific Advisory Board work individually with the Company to advise the Company on matters of research interest to the Company and which are within the expertise of the advisor. Accordingly, the Scientific Advisory Board does not meet as a full board and the Company does not anticipate having a need for such meetings in the future. The initial Scientific Advisory Board currently consists of:

***Dr. Edward Sauter, M.D., Ph.D.*** Dr. Sauter is the Associate Dean for Research and Professor of Surgery at the University of North Dakota School of Medicine & Health Sciences and has served in this position since Fall 2008. He received his M.D. from the Louisiana State School of Medicine and his Ph.D. from the University of Pennsylvania. He completed his general surgery residency at the Ochsner Clinic, in New Orleans, Louisiana. Dr. Sauter also completed a Surgical Oncology Fellowship at Fox Chase Cancer Center in Philadelphia, Pennsylvania. Dr. Sauter was Vice-Chair for Research in the Department of Surgery and Professor at the University of Missouri-Columbia from 2002 to 2008. He also completed his MHA while at the University of Missouri. Dr. Sauter is widely recognized for his research and clinical experience in breast cancer. Among his many accomplishments, Dr. Sauter and a team of researchers pioneered noninvasive and minimally invasive techniques to predict breast cancer risk using NAF. Dr. Sauter is the co-author of over 100 peer-reviewed publications on breast cancer, the majority of which pertain to cytology and molecular diagnostic biomarkers in NAF.

Dr. Sauter and the Company entered into a consulting agreement on February 18, 2010 which provides a $5,000 signing fee and $1,000 per month for up to four hours per month of Dr. Sauter's time. The agreement also provides reasonable travel expenses in connection with his work for the Company. This is the only compensation received for being a member of the Scientific Advisory Board.

***Dr. Timothy Hunkapiller, Ph.D.*** Dr. Hunkapiller has been a pioneering presence in computational biotechnology since its infancy 30 years ago and is co-inventor of the largest selling analytical research instrument in the world: the Perkin Elmer/Applied Biosystems DNA sequencer. Through his Seattle, Washington-based company, DiscoveryBiosciences, he provides technical consulting and commercialization services to both established and upcoming biotech companies.

Dr. Hunkapiller earned a Ph.D. from California Institute of Technology and was Research Assistant Professor in the Department of Molecular Biotechnology at the University of Washington from 1992 until 1999. As a scientist, Dr. Hunkapiller's research focus included molecular immunology, evolution, computational genetics and comparative genomics. He is considered a leading expert on the genetics, genomic organization and functional diversity of the immune system. For the last 20 years, he has also been involved in bioinformatics, algorithm and database development and experimental process optimization.

While at Caltech, Dr. Hunkapiller originated the model for the automated, fluorescent DNA sequencer. The manifestation of this idea in products such as the ABI 3700 ™ and the MD Megabase ™ sequencers catalyzed and enabled the completion of the first drafts of the Human Genome and helped to revolutionize the field of genomics. He continues to work with Applied Biosystems today on improving the throughput and quality of data from these instruments and their associated chemistry.

Dr. Hunkapiller has been an advisor to a number of biotechnology companies as well as technology companies servicing the biotechnology and pharmaceutical industry. These efforts range from helping with SNP association studies for target discovery in breast cancer to the application of novel computer technologies in intelligently searching very large, unstructured text sources to improve intellectual property analysis.

In April 2011, Dr. Hunkapiller received options to purchase up to 45,000 shares of our Common Stock at an exercise price of $1.25 per share, the then fair market value. This is the only compensation received for being a member of the Scientific Advisory Board.

**DIRECTOR COMPENSATION**

The non-employee directors of the Company receive the following:

- upon joining the Board, an initial director compensation fee of $50,000, paid in shares of the Company's Common Stock and that vests ratably over one year from the date of grant;
- an annual director retainer of $50,000, paid in shares of the Company's Common Stock and/or options to purchase Common Stock and that vests ratably over one year; and
- a fee of $2,000 for the chairperson for each Board or committee meeting attended in person, a fee of $1,500 for the members for each Board or committee meeting attended in person, a fee of $1,500 for the chairperson for each Board or committee meeting attended via telephone and a fee of $1,000 for the members for each Board or committee meeting attended via telephone.

In addition to the above, annual compensation for service on the Audit Committee is $12,000 for the Chair and $8,000 for each member, paid in fully vested shares of the Company's Common Stock and/or options to purchase Common Stock, payable in arrears; and annual compensation for service on the Compensation Committee and Nominating/Governance Committee is $10,000 for the Chair and $6,000 for each member, paid in fully vested shares of the Company's Common Stock and/or options to purchase Common Stock, payable in arrears.

The employee directors receive no compensation for their board service. Pursuant to the policies of Pryor Cashman, the law firm of which Mr. Remmel is a partner, the compensation Mr. Remmel receives for his services as a director (other than expense reimbursement) is paid to the firm directly. All directors receive reimbursement for reasonable travel expenses. The following table sets forth information regarding compensation earned by our non-employee directors during the fiscal year ended December 31, 2012:

| Name | Fees Earned or Paid in Cash (6) | Total |
|---|---|---|
| John Barnhart (1)(5) | $ 88,500 | $88,500 |
| Stephen Galli, M.D. (2)(5) | $ 73,000 | $73,000 |
| Alexander Cross, Ph.D. (3)(5) | $ 85,500 | $85,500 |
| H. Lawrence Remmel, Esq. (4)(5) | $ 77,500 | $77,500 |

(1) Fees earned or paid in cash consists of (a) $14,500 in meeting attendance fees; (b) $8,000 paid in fully vested options, payable in arrears, for service as a member of the Audit Committee; (c) $10,000 paid in fully vested options, payable in arrears, for service as chairperson of the Compensation Committee; (d) $6,000 paid in fully vested options, payable in arrears, for service as a member of the Nominating/Governance Committee; and (e) $50,000 paid in shares of Common Stock and/or options to purchase shares of Common Stock for 2012 annual director fees. Excludes the grant of an option to purchase 7,903 shares of Common Stock at $6.00 per share granted on April 30, 2012 for service as a board member prior to 2012.

(2) Fees earned or paid in cash consists of (a) $7,000 in meeting attendance fees; (b) $6,000 paid in fully vested options, payable in arrears, for service as a member of the Compensation Committee; (c) $10,000 paid in fully vested options, payable in arrears, for service as chairperson of the Nominating/Governance Committee; and (d) $50,000 paid in shares of Common Stock and/or options to purchase shares of Common Stock for 2012 annual director fees. Excludes the grant of an option to purchase 5,927 shares of Common Stock at $6.00 per share granted on April 30, 2012 for service as a board member prior to 2012.

(3) Fees earned or paid in cash consists of (a) $17,500 in meeting attendance fees; (b) $12,000 paid in fully vested options, payable in arrears, for service as chairperson of the Audit Committee; (c) $6,000 paid in fully vested options, payable in arrears, for service as a member of the Compensation Committee; and (d) $50,000 paid in shares of Common stock and/or options to purchase shares of Common Stock for 2012 annual director fees. Excludes the grant of an option to purchase 5,927 shares of Common Stock at $6.00 per share granted on April 30, 2012 for service as a board member prior to 2012.

(4) Fees earned or paid in cash consists of (a) $13,500 in meeting attendance fees; (b) $8,000 paid in fully vested options, payable in arrears, for service as a member of the Audit Committee; (c) $6,000 paid in fully vested options, payable in arrears, for service as a member of the Nominating/Governance Committee; and (d) $50,000 paid in shares of Common Stock and/or options to purchase shares of Common Stock for 2012 annual director fees.

(5) Fees that were payable in stock and/or options for 2012 service on the board will be granted on or before the 2013 annual meeting of stockholders.

(6) Includes the dollar value of fees payable for service on the Board of Directors and for service as a member or Chairman of the committees of the Board which will be paid in Common Stock and/or options to purchase Common Stock, the amounts and exercise prices of which will be determined on or before the 2013 annual meeting of stockholders.

**Director Independence**

The Board of Directors of the Company has reviewed the materiality of any relationship that each of our directors has with the Company, either directly or indirectly. Based on this review, the Board of Directors of the Company has determined that John Barnhart, Stephen J. Galli, M.D., Alexander Cross, Ph.D. and Lawrence Remmel, Esq. are "independent directors" as defined under the applicable rules of the NASDAQ Capital Market.

**Committees of the Board of Directors of the Company**

The Board of Directors of the Company has established an Audit Committee, a Compensation Committee and a Nominating and Governance Committee. The composition and function of each of these committees is described below.

*Audit Committee*

The Audit Committee is comprised of Dr. Cross (chair), Mr. Barnhart and Mr. Remmel. The Board of Directors of the Company has determined that Dr. Cross is an "Audit Committee Financial Expert," as defined by the rules of the SEC. The Audit Committee is authorized to:

- approve and retain the independent registered public accounting firm to conduct the annual audit of the Company's financial statements;
- review the proposed scope and results of the annual audit;
- review and pre-approve audit and non-audit fees and services;
- review proposed changes in the Company's financial and accounting standards and principles;
- review the Company's policies and procedures with respect to its internal accounting, auditing and financial controls;
- review and approve transactions between the Company and its directors, officers and affiliates; and
- establish procedures for complaints received by the Company regarding accounting matters.

The Company believes that the composition of its Audit Committee meets the independence requirements of the Exchange Act and the NASDAQ Capital Market.

*Compensation Committee*

The Compensation Committee is comprised of Mr. Barnhart (chair), Dr. Cross, and Dr. Galli. All members of the Compensation Committee qualify as independent directors under the current definition promulgated by the NASDAQ Capital Market. The Compensation Committee is authorized to:

- review and recommend the compensation arrangements for management, or approve such arrangements, if directed by the board;
- establish and review general compensation policies with the objective to attract and retain superior talent, to reward individual performance and to achieve corporate goals;
- administer stock incentive and purchase plans; and
- review and recommend to the board the compensation paid to non-employee directors for their service on the Board of Directors.

*Nominating and Governance Committee*

The Nominating and Governance Committee is comprised of Dr. Galli (chair), Mr. Barnhart, and Mr. Remmel. All members of the Nominating and Governance Committee qualify as independent directors under the current definition promulgated by the NASDAQ Capital Market. The Nominating and Governance Committee is authorized to:

- identify and nominate candidates for election to the Board of Directors of the Company;

- establish policies under which stockholders may recommend a candidate for consideration for nomination as a director;
- annually review and evaluate the performance, operations, size and composition of the Board; and
- periodically assess and review the Company's Corporate Governance Guidelines and recommend any changes deemed appropriate to the Board for its consideration.

**Compensation Committee Interlocks and Insider Participation**

No member of our Compensation Committee has at any time been an employee of ours. None of our executive officers serves as a member of the Board of Directors or Compensation Committee of any other entity that has one or more executive officers serving as a member of our Board of Directors or Compensation Committee.

**Code of Ethics**

We have adopted a Corporate Code of Business Conduct and Ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. The Corporate Code of Business Conduct and Ethics is available on our website. We expect that any amendments to the code, or any waivers of its requirements, will be disclosed on our website.

**Limitation of Directors' and Officers' Liability and Indemnification**

The Delaware General Corporation Law authorizes corporations to limit or eliminate, subject to specified conditions, the personal liability of directors to corporations and their stockholders for monetary damages for breach of their fiduciary duties. Our certificate of incorporation and amended and restated bylaws limit the liability of our directors to the fullest extent permitted by Delaware law.

We have obtained director and officer liability insurance to cover liabilities that our directors and officers may incur in connection with their services to us. Our certificate of incorporation and amended and restated bylaws also provide that we will indemnify and advance expenses to any of our directors and officers who, by reason of the fact that he or she is an officer or director, is involved in a legal proceeding of any nature. We will repay certain expenses incurred by a director or officer in connection with any civil, criminal, administrative or investigative action or proceeding, including actions by us or in our name. Such indemnifiable expenses include, to the maximum extent permitted by law, attorney's fees, judgments, fines, settlement amounts and other expenses reasonably incurred in connection with legal proceedings. A director or officer will not receive indemnification if he or she is found not to have acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interest.

Such limitation of liability and indemnification does not affect the availability of equitable remedies. In addition, we have been advised that in the opinion of the SEC, indemnification for liabilities arising under the Securities Act is against public policy as expressed in the Securities Act and is therefore unenforceable.

There is no pending litigation or proceeding involving any of our directors, officers, employees or agents in which indemnification will be required or permitted. We are not aware of any threatened litigation or proceeding that may result in a claim for such indemnification.

**EXECUTIVE COMPENSATION**

**Remuneration of Officers**

Our Compensation Committee is responsible for reviewing and evaluating key executive employee base salaries, setting goals and objectives for executive bonuses and administering benefit plans. The Compensation Committee provides advice and recommendations to our Board of Directors on such matters. See "Committees of the Board of Directors — Compensation Committee" for further details on the role of the Compensation Committee.

**Summary Compensation Table**

The following table sets forth the compensation earned by our Chief Executive Officer, Chief Scientific Officer and Chief Financial Officer (collectively, the "Named Executive Officers") for fiscal year 2012:

| Name and Position | Year | Salary | Bonus (1) | Total |
|---|---|---|---|---|
| Steven C. Quay, M.D., Ph.D. | 2012 | $250,000 | $72,590 | $322,590 |
| President and Chief Executive Officer | 2011 | $250,000 | $61,905 | $311,905 |
| Christopher Benjamin (2) | 2012 | $109,300 | $— | $109,300 |
| Chief Financial Officer | 2011 | 38,968 | $— | $38,968 |
| Shu-Chih Chen, Ph.D. | 2012 | $200,000 | $43,554 | $243,554 |
| Chief Scientific Officer | 2011 | $200,000 | $37,143 | $237,143 |

(1) No options were granted to the Named Executive Officers in 2012. The bonuses payable to Drs. Quay and Chen for 2012 were paid on March 11, 2013 in the form of fully-vested options with Dr. Quay receiving an option to purchase 44,194 shares of Common Stock at $6.57 per share, the fair market value of our Common Stock on the date of grant, and Dr. Chen receiving an option to purchase 26,516 shares at $6.57 per share, the fair market value of our Common Stock on the date of grant. See "Employment Agreements" below for a further description of the compensation arrangements with these officers.

(2) Mr. Benjamin served as a part-time employee and was compensated pursuant to a consulting agreement, as described below. Mr. Benjamin served as our interim Chief Financial Officer through January 3, 2013. Kyle Guse was appointed as our Chief Financial Officer, General Counsel and Secretary on January 4, 2013.

**Outstanding Equity Awards at Fiscal Year-End**

The following table shows information regarding our outstanding equity awards at December 31, 2012 for the Named Executive Officers:

| Name | Number of Securities Underlying Unexercised Options (#) Exercisable | Number of Securities Underlying Unexercised Options (#) Unexercisable | Option Exercise Price | Option Expiration Date |
|---|---|---|---|---|
| Steven C. Quay, M.D., Ph.D. (1) | 187,500 | 62,500 | $ 5.00 | 7/22/2015 |
| Christopher Benjamin | — | — | — | — |
| Shu-Chih Chen, Ph.D. (2) | 75,000 | 25,000 | $ 5.00 | 7/22/2015 |

(1) Dr. Quay received an option to purchase up to 250,000 shares of Common Stock at an exercise price of $5.00 per share, the fair market value of the Common Stock on the date of grant, as determined by the Board of Directors. One quarter of the shares of Common Stock underlying the option, or 62,500 shares, vested on December 31, 2010, and the remaining 75%, or 187,500 shares, vest in equal quarterly installments over the next three years, so long as Dr. Quay remains employed with us.

(2) Dr. Chen received an option to purchase up to 100,000 shares of Common Stock at an exercise price of $5.00 per share, the fair market value of the Common Stock on the date of grant, as determined by the Board of Directors. One quarter of the shares of Common Stock underlying the option, or 25,000 shares, vested on December 31, 2010, and the remaining 75%, or 75,000 shares, vest in equal quarterly installments over the next three years, so long as Dr. Chen remains employed with us.

**Employment Agreements**

*Employment Agreement with Steven Quay, M.D., Ph.D.*

The Company has entered into an employment agreement with Dr. Quay to act as the Company's Chief Executive Officer. The agreement provides for an initial base salary of $250,000 per year and an annual target bonus of up to 40% of Dr. Quay's then-current base salary, payable upon the achievement of performance goals to be established annually by the Compensation Committee. These salary and bonus levels continued for 2012.

The goals for fiscal 2012 included completion of a financing transaction, national launch of ForeCYTE and ArgusCYTE, field test launch of FullCYTE, regulatory filings for NextCYTE and intraductal treatment, identify an additional product, evaluate potential modifications to the ArgusCYTE test, recruit and retain additional personnel, establish business model for foreign markets and manage the company through the IPO process. In February 2013, the Compensation Committee reviewed the performance of Dr. Quay for 2012 against these goals and determined that his bonus for 2012 would be $72,590. In lieu of receiving a cash bonus, Dr. Quay received a fully-vested option to purchase 44,194 shares of Common Stock at $6.57 per share, the fair market value of the Company's Common Stock on the date of grant.

Under his employment agreement, Dr. Quay received an option to purchase up to 250,000 shares of Common Stock at an exercise price of $5.00 per share, the fair market value of the Common Stock on the date of grant, as determined by the Board of Directors. One-quarter of the shares of Common Stock underlying the option, or 62,500 shares, vested on December 31, 2010, and the remaining 75%, or 187,500 shares, vest in equal quarterly installments over the next three years, so long as Dr. Quay remains employed with the Company.

During the employment term, the Company will make available to Dr. Quay employee benefits provided to other key employees and officers of the Company. To the extent these benefits are based on length of service with the Company, Dr. Quay will receive full credit for prior service with the Company. Participation in health, hospitalization, disability, dental and other insurance plans that the Company may have in effect for other executives, all of which shall be paid for by the Company with contribution by Dr. Quay as set for the other executives, as and if appropriate.

Dr. Quay will be entitled to six weeks of paid vacation per year for each full year of employment, pro-rated for each partial year. Vacation time not taken during a calendar year will not be accrued to the next calendar year.

Dr. Quay has also agreed that, for the period commencing on the date of his employment agreement with the Company and during the term of his employment and for a period of 12 months following voluntary termination of his employment with the Company that he will not compete with the Company in the United States. The employment agreement also contains provisions relating to confidential information and assignment of inventions, which require Dr. Quay to refrain from disclosing any proprietary information and to assign to the Company any inventions which directly concern the MASCT System, Oxy-MASCT System, or future products, research, or development, or which result from work they perform for the Company or using its facilities.

*Consulting Agreement with Christopher Benjamin.*

The Company has entered into an agreement with Christopher Benjamin to act as the Company's interim Chief Financial Officer during 2011 and 2012. The agreement provided a monthly retainer fee of $2,250 for up to 25 hours of work per month and $100 per hour beyond that level. The agreement was terminated on January 3, 2013 in connection with Mr. Benjamin's departure as the interim Chief Financial Officer.

*Employment Agreement with Shu-Chih Chen, Ph.D.*

The Company has entered into an employment agreement with Dr. Chen to act as the Company's Chief Scientific Officer. The agreement provides for an initial base salary of $200,000 per year and an annual target bonus of up to 30% of Dr. Chen's then-current base salary, payable upon the achievement of performance goals to be established annually by the Compensation Committee. These base salary and bonus levels continued for 2012.

The goals for fiscal 2012 included completion of a financing transaction, national launch of ForeCYTE and ArgusCYTE, field test launch of FullCYTE, regulatory filings for NextCYTE and intraductal treatment, identify an additional product, evaluate potential modifications to the ArgusCYTE test, recruit and retain additional personnel, establish business model for foreign markets and manage the company through the IPO process. In February 2013, the Compensation Committee reviewed the performance of Dr. Chen for 2012 against these goals and determined that her bonus for 2012 would be $43,554. In lieu of receiving a cash bonus, Dr. Chen received a fully-vested option to purchase 26,516 shares at $6.57 per share, the fair market value of the Company's Common Stock on the date of grant.

Under her employment agreement, Dr. Chen received an option to purchase up to 100,000 shares of Common Stock at an exercise price of $5.00 per share, the fair market value of the Common Stock on the date of grant, as determined by the Board of Directors. One quarter of the shares of Common Stock underlying the option, or 25,000 shares, vested on December 31, 2010, and the remaining 75%, or 75,000 shares, vest in equal quarterly installments over the next three years, so long as Dr. Chen remains employed with the Company.

During the employment term, the Company will make available to Dr. Chen employee benefits provided to other key employees and officers of the Company. To the extent these benefits are based on length of service with the Company, Dr. Chen will receive full credit for prior service with the Company. Participation in health, hospitalization, disability, dental and other insurance plans that the Company may have in effect for other executives, all of which shall be paid for by the Company with contribution by Dr. Chen as set for the other executives, as and if appropriate.

Dr. Chen will be entitled to six weeks of paid vacation per year for each full year of employment, pro rated for each partial year. Vacation time not taken during a calendar year will not be accrued to the next calendar year.

Dr. Chen has also agreed that, for the period commencing on the date of her employment agreement with the Company and during the term of her employment and for a period of 12 months following voluntary termination of her employment with the Company that she will not compete with the Company in the United States. The employment agreement also contains provisions relating to confidential information and assignment of inventions, which require Dr. Chen to refrain from disclosing any proprietary information and to assign to the Company any inventions that directly concern the MASCT System, Oxy-MASCT System, or future products, research, or development, or that result from work she performs for the Company or using its facilities.

**Severance Benefits and Change in Control Arrangements**

The Company has agreed to provide the severance benefits and change in control arrangements described below to its named executive officers.

*Dr. Steven Quay*

Pursuant to his employment agreement, if (i) the Company terminates the employment of Dr. Quay without cause, or (ii) Dr. Quay terminates his employment for good reason, then Dr. Quay will be entitled to receive all accrued but unpaid compensation, plus a severance payment equal to 12 months of base salary. In addition, upon such event, the vesting of all shares of Common Stock underlying options then held by Dr. Quay will accelerate, and the options will

remain exercisable for the remainder of their terms. The cash severance payment is required to be paid in substantially equal installments over a period of six months beginning on the Company's first payroll date that occurs following the 30th day after the effective date of termination of Dr. Quay's employment, subject to certain conditions. The Company will not be required, however, to pay any severance pay for any period following the termination date if Dr. Quay materially violates certain provisions of his employment agreement and the violation is not cured within 30 days following receipt of written notice from the Company containing a description of the violation and a demand for immediate cure.

In addition, under the terms of his employment agreement, in the event of a "change in control" of the Company (as defined in the employment agreement) during Dr. Quay's employment term, Dr. Quay will be entitled to receive a one-time payment equal to 2.9 times his base salary, and the vesting of all outstanding equity awards then held by Dr. Quay will accelerate such that they are fully vested as of the date of the change in control.

*Dr. Shu-Chih Chen*

Pursuant to her employment agreement, if (i) the Company terminates the employment of Dr. Chen without cause, or (ii) Dr. Chen terminates her employment for good reason, then Dr. Chen will be entitled to receive all accrued but unpaid compensation, plus a severance payment equal to 12 months of base salary. In addition, upon such event, the vesting of all shares of Common Stock underlying options then held by Dr. Chen will accelerate, and the options will remain exercisable for the remainder of their terms. The cash severance payment is required to be paid in substantially equal installments over a period of six months beginning on the Company's first payroll date that occurs following the 30th day after the effective date of termination of Dr. Chen's employment, subject to certain conditions. The Company will not be required, however, to pay any severance pay for any period following the termination date if Dr. Chen materially violates certain provisions of her employment agreement and the violation is not cured within 30 days following receipt of written notice from the Company containing a description of the violation and a demand for immediate cure.

In addition, under the terms of her employment agreement, in the event of a "change in control" of the Company (as defined in the employment agreement) during Dr. Chen's employment term, Dr. Chen will be entitled to receive a one-time payment equal to 2.9 times her base salary, and the vesting of all outstanding equity awards then held by Dr. Chen will accelerate such that they are fully vested as of the date of the change in control.

**2010 Stock Option and Incentive Plan**

The Company's 2010 Stock Option and Incentive Plan, or the 2010 Plan, provides for the grant of equity-based awards to employees, officers, non-employee directors and other key persons providing services to the Company. Awards of incentive options may be granted under the 2010 Plan until September 2020. No other awards may be granted under the 2010 Plan after the date that is 10 years from the date of stockholder approval.

*Plan Administration*. The 2010 Plan may be administered by the full board or the Compensation Committee. It is the current intention of the Company that the 2010 Plan be administered by the Compensation Committee. The Compensation Committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2010 Plan. The Compensation Committee may delegate to our Chief Executive Officer the authority to grant stock options to employees who are not subject to the reporting and other provisions of Section 16 of the Exchange Act and not subject to Section 162(m) of the Code, subject to certain limitations and guidelines.

*Eligibility*. Persons eligible to participate in the 2010 Plan will be those full or part-time officers, employees, non-employee directors and other key persons (including consultants and prospective officers) of the Company and its subsidiaries as selected from time to time by the Compensation Committee in its discretion.

*Plan Limits*. Initially, the total number of shares of Common Stock available for issuance under the 2010 Plan is 1,000,000 shares (or 2,263,320 shares prior to the reverse stock-split on September 28, 2010). As of January 1, 2012 and each January 1 thereafter, the number of shares of Common Stock reserved and available for issuance under the 2010 Plan will be cumulatively increased by 4% of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31. Subject to these overall limitations, the maximum aggregate number of shares of Stock that may be issued in the form of incentive stock options or stock appreciation rights to any one individual will not exceed 50% of the initial 2010 Plan limit of 1,000,000, cumulatively increased on January 1, 2012 and each January 1 thereafter by the lesser of (i) the 4% annual increase applicable to the 2010 Plan for such year or (ii) 500,000 shares.

*Stock Options*. The 2010 Plan permits the granting of (i) options to purchase Common Stock intended to qualify as incentive stock options under Section 422 of the Code and (ii) options that do not so qualify. Options granted under the 2010 Plan will be non-qualified options if they fail to qualify as incentive options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of the Company and its subsidiaries. Non-qualified options may be granted to any persons eligible to receive incentive options and to non-employee directors and key persons. The option exercise price of each option will be determined by the Compensation Committee but may not be less than 100% of the fair market value of the Common Stock on the date of grant. Fair market value for this purpose will be the last reported sale price of the shares of Common Stock on the

NASDAQ Capital Market on the date of grant. The exercise price of an option may not be reduced after the date of the option grant, other than to appropriately reflect changes in our capital structure.

The term of each option will be fixed by the Compensation Committee and may not exceed 10 years from the date of grant. The Compensation Committee will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the Compensation Committee. In general, unless otherwise permitted by the Compensation Committee, no option granted under the 2010 Plan is transferable by the optionee other than by will or by the laws of descent and distribution, and options may be exercised during the optionee's lifetime only by the optionee, or by the optionee's legal representative or guardian in the case of the optionee's incapacity.

Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the Compensation Committee or by delivery (or attestation to the ownership) of shares of Common Stock that are beneficially owned by the optionee for at least six months or were purchased in the open market. Subject to applicable law, the exercise price may also be delivered to the Company by a broker pursuant to irrevocable instructions to the broker from the optionee. In addition, the Compensation Committee may permit non-qualified options to be exercised using a net exercise feature which reduces the number of shares issued to the optionee by the number of shares with a fair market value equal to the exercise price.

To qualify as incentive options, options must meet additional federal tax requirements, including a $100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year.

*Stock Appreciation Rights*. The Compensation Committee may award stock appreciation rights subject to such conditions and restrictions as the Compensation Committee may determine. Stock appreciation rights entitle the recipient to shares of Common Stock equal to the value of the appreciation in the stock price over the exercise price. The exercise price is the fair market value of the Common Stock on the date of grant. The term of a stock appreciation right will be fixed by the Compensation Committee and may not exceed 10 years.

*Restricted Stock*. The Compensation Committee may award shares of Common Stock to participants subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified restricted period.

*Restricted Stock shares*. The Compensation Committee may award restricted stock shares to any participants. Restricted stock shares are generally payable in the form of shares of Common Stock, although restricted stock shares granted to the chief executive officer may be settled in cash. These shares may be subject to such conditions and restrictions as the Compensation Committee may determine. These conditions and restrictions may include the achievement of certain performance goals (as summarized above) and/or continued employment with the Company through a specified vesting period. In the Compensation Committee's sole discretion, it may permit a participant to make an advance election to receive a portion of his or her future cash compensation otherwise due in the form of a restricted stock unit award, subject to the participant's compliance with the procedures established by the Compensation Committee and requirements of Section 409A of the Code. During the deferral period, the deferred stock awards may be credited with dividend equivalent rights.

*Adjustments for Stock Dividends, Stock Splits, Etc.* The 2010 Plan requires the Compensation Committee to make appropriate adjustments to the number of shares of Common Stock that are subject to the 2010 Plan, to certain limits in the 2010 Plan, and to any outstanding awards to reflect stock dividends, stock splits, extraordinary cash dividends and similar events.

*Tax Withholding*. Participants in the 2010 Plan are responsible for the payment of any federal, state or local taxes that the Company is required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. Subject to approval by the Compensation Committee, participants may elect to have the minimum tax withholding obligations satisfied by authorizing the Company to withhold shares of Common Stock to be issued pursuant to the exercise or vesting.

*Amendments and Termination*. The Board of Directors of the Company may at any time amend or discontinue the 2010 Plan and the Compensation Committee may at any time amend or cancel any outstanding award for the purpose of satisfying changes in the law or for any other lawful purpose. However, no such action may adversely affect any rights under any outstanding award without the holder's consent. To the extent required under the NASDAQ Capital Market rules, any amendments that materially change the terms of the 2010 Plan will be subject to approval by our stockholders. Without approval by our stockholders, the Compensation Committee may not reduce the exercise price of options or stock appreciation rights or effect repricing through cancellation or re-grants, including any cancellation in exchange for cash. Amendments shall also be subject to approval by our stockholders if and to the extent determined by the Compensation Committee to be required by the Code to preserve the qualified status of incentive options or to ensure that compensation earned under the 2010 Plan qualifies as performance-based compensation under Section 162(m) of the Code.

**Other Benefits**

The Company offers health, dental, disability, and life insurance to its full-time employees. All employees pay a portion of health, dental, and disability insurance premiums and pay all life insurance premiums.

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## CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Dr. Quay is the President, Chief Executive Officer and Chairman of the Board of Directors of the Company. Dr. Chen is the Chief Scientific Officer and a director of the Company. Drs. Quay and Chen are husband and wife. Drs. Quay and Chen are significant minority stockholders. Ensisheim Partners, LLC, which holds approximately 30% of the outstanding Common Stock of the Company prior to this offering, is wholly owned by Drs. Quay and Chen, and they are the beneficial owners of the shares of the Company's stock owned by that entity.

Ensisheim was the original owner of the patents covering the MASCT System, which were acquired by the Company in June 2010. Ensisheim has no further interest or right to the U.S. patents and foreign counterparts that cover the manufacture, use, and sale of the MASCT System, the pending patent applications for improvements, or the FDA marketing authorization for the MASCT System that was transferred to the Company. Ensisheim did not receive any monetary compensation in connection with the transfer and assignment to the Company of the patents, patent applications and FDA marketing authorization but received shares of Common Stock of the Company in consideration for its contribution of these assets. Ensisheim holds patents and patent applications for inventions created by the owners in fields unrelated to the Company's business and provides a corporate structure for consulting activities of the owners in fields unrelated to the Company's business. Drs. Quay and Chen currently devote substantially all of their professional efforts to the business of the Company.

### Loans from Officer

On May 26, 2009, the Company borrowed $5,000 from its Chairman of the Board and Chief Executive Officer as a short-term, unsecured loan via an oral agreement and did not bear any interest. Commencing June 30, 2010, the loan was converted into a written Promissory Note bearing an annual interest rate of 10%, with a maturity date of December 31, 2010. This note was repaid in full on May 16, 2011, including approximately $439 in accrued interest.

On June 30, 2010, the Company borrowed an additional $100,000 from its Chairman of the Board and Chief Executive Officer pursuant to a promissory note. The loan under the note was funded to the Company on July 12, 2010. The note bore interest at a rate of 10% per annum and carried a $4,000 loan origination fee, which accreted to the loan balance over the life of the loan. The $4,000 loan origination fee was fully accreted to the loan balance as of March 31, 2011 and December 31, 2010, and recorded as interest expense for the year ended December 31, 2010. This note (including the $4,000 origination fee) was repaid in full on May 19, 2011, including approximately $8,959 in accrued interest.

On November 3, 2010, the Company entered into a line of credit for borrowing up to $500,000 from its Chairman of the Board and Chief Executive Officer pursuant to a promissory note. The note bore interest at a rate of 10% per

annum. An aggregate of $140,000 was funded to the Company under the line of credit through March 31, 2011, which was repaid on May 31, 2011, including approximately $6,093 in accrued interest. As of December 31, 2011, the unpaid principal balance drawn from the line of credit was $10,000. The note is payable in full on or before December 31, 2011 for the outstanding balance borrowed. As of December 31, 2011, the unpaid principal balance drawn from the line of credit was $5,078, which was fully repaid on March 31, 2012, as well as $823 in interest.

**Exclusive License Agreement**

On July 27, 2009, the Company entered into an exclusive license agreement with Ensisheim Partners LLC ("Ensisheim"), an entity solely owned by the Chairman and Chief Executive Officer of the Company and the Chief Scientific Officer of the Company, who is also the Company's Chairman and CEO's wife. Pursuant to that agreement, Ensisheim granted the Company an exclusive, worldwide, perpetual, irrevocable, royalty-bearing, license to the MASCT System, with the right to grant and authorize sublicenses. The license agreement provided that the Company would pay Ensisheim a royalty equal to 2% of net sales revenue, with a minimum royalty of $12,500 per fiscal quarter during the term of the agreement, which would have increased to a minimum royalty of $25,000 per fiscal quarter beginning in the quarter in which the first commercial sale of a licensed product would have taken place. As of December 31, 2009, a total of $12,500 was payable to Ensisheim under the minimum royalty provisions. From inception through December 31, 2010, the Company had incurred $16,250 in patent-related expenses under the license agreement with Ensisheim. The $16,250 in patent-related expenses relates to legal fees in connection with filing and prosecuting the related patent applications and has been paid in full by the Company.

On June 17, 2010, the Company and Ensisheim entered into an Assignment Agreement whereby Ensisheim assigned to the Company all rights to the patents and patent applications underlying the MASCT System. Pursuant to the assignment, the Company will have all responsibility for prosecution, maintenance, and enforcement and will indemnify Ensisheim from any and all claims against the patent estate. Ensisheim retained no residual rights with respect to the patents and patent applications. In conjunction with the assignment, the Company terminated the exclusive license agreement between the Company and Ensisheim dated July 27, 2009. As a result of the termination, the Company has no further obligations with respect to royalty payments to Ensisheim due under the old licensing agreement. As a result, the $12,500 of patent royalty payable to Ensisheim recorded as accrued royalty payable at December 31, 2009 has been reversed through royalty expense during the second quarter of 2010. Ensisheim did not receive further cash or equity consideration under the Assignment Agreement other than the shares of Common Stock it had already received in April 2009 as a result of its contribution of intellectual property rights and FDA marketing authorization for the MASCT System. Neither the Chief Executive Officer nor the Chief Technology Officer of the Company received consideration under the Assignment Agreement. However, since Ensisheim has at all times held a substantial equity position in the Company, the potential increased profits of the Company as a result of the removal of this royalty payment obligation may provide more potential economic value to Ensisheim than the royalty payment would have provided.

**Commercial Lease Agreement**

On December 24, 2009, the Company entered into a commercial lease agreement with Ensisheim for office space located in Seattle, Washington. The lease provided for annual rent of $13,200, plus applicable sales tax. From inception through December 31, 2009, the Company incurred $248 of rent expense for the lease. As of December 31, 2009, the security deposit for the lease amounted to $1,100. For the period of January 1, 2010 through June 30, 2010, the Company incurred $6,600 of rent expense for the lease. On July 15, 2010 the Company and Ensisheim terminated the lease, effective July 1, 2010, and the Company commenced use of the facility rent free until April 1, 2011 when the commercial lease agreement the Company entered into with Sanders Properties, LLC became effective. The $1,100 security deposit paid to Ensisheim remained outstanding and was recorded as Due from Related Party as of June 30, 2012.

**Executive Compensation**

On May 19, 2010, the Company entered into employment agreements with three executives, including its Chief Executive Officer, its former President, and its Chief Scientific Officer. The annual base salaries under each agreement were calculated based on combined consideration of the success of capital raise and the operating results of the Company, and capped at $360,000, $350,000, and $250,000, respectively for the three executives.

On July 22, 2010, in connection with the resignation and departure of Robert L. Kelly, the President and a director, the Company entered into a consulting agreement with a limited liability company controlled by Mr. Kelly. Under the agreement, the Company was to receive consulting services relating to capital raising and investor relations. The agreement was terminated by the Company in September 2010, through which time a total of $30,000 consulting expense had been paid.

On July 22, 2010, the Company amended and restated the employment agreements with its Chief Executive Officer and Chief Scientific Officer. The agreements modified the annual base salary amounts to $250,000 and $200,000, respectively, effective retroactively to May 19, 2010. These salaries were accrued and amounted to $391,071 and $278,571 as of March 31, 2011 and December 31, 2010, respectively, and paid in full in April 2011. For the twelve-month periods ended December 31, 2011 and 2010, salaries and bonuses of the Chief Executive Officer and Chief Scientific Officer amounted to $693,048 and $377,620, of which $492,095 and $0 was recorded to research and development expense, respectively.

**Share-Based Compensation**

The amended and restated employment agreement with the Chief Executive Officer granted options to purchase 250,000 shares (or 565,830 shares prior to the reverse stock split on September 28, 2010) at a price of $5.00 per share (or $2.64 per share prior to the reverse stock split on September 28, 2010), in consideration of his service to the Company. Of these options, 25% (or 62,500 shares) vested on December 31, 2010 with the remaining 75% (or 187,500 shares) to vest in equal quarterly installments over the next three years so long as the executive remains employed with the Company. These options have five-year contractual terms.

The amended employment agreement with the Chief Scientific Officer granted options to purchase 100,000 shares (or 226,332 shares prior to the reverse stock split on September 28, 2010) at a price of $5.00 per share (or $2.64 per share prior to the reverse stock split on September 28, 2010) in consideration of her service to the Company. Of these options, 25% (or 25,000 shares) vested on December 31, 2010 with the remaining 75% (or 75,000 shares) to vest in equal quarterly installments over the next three years so long as the executive remains employed with the Company. These options have five-year contractual terms.

The 2012 bonuses payable to Drs. Quay and Chen for 2012, in the amount of $72,590 and $43,554, respectively, were paid on March 11, 2013 in the form of fully-vested options with Dr. Quay receiving an option to purchase 44,194 shares of Common Stock at $6.57 per share, the fair market value on the date of grant, and Dr. Chen receiving an option to purchase 26,516 shares at $6.57 per share, the fair market value on the date of grant. See “Employment Agreements” above for a further description of the compensation arrangements with these officers.

On April 4, 2011, 45,000 non-qualified stock options were granted under the 2010 Stock Option and Incentive Plan to Dr. Tim Hunkapiller for being a member of the Company’s Scientific Advisory Board and consulting services to be provided to the Company, at an exercise price of $1.25 per share. These options have a ten-year contractual term and shall vest as follows:

(i) 11,250 option shares vest ninety (90) days after the date of grant;

(ii) 11,000 option shares vest one hundred and eighty (180) days after the date of grant;

(iii) 11,500 option shares vest two hundred and seventy (270) days after the date of grant; and

(iv) 11,250 option shares vest three hundred and sixty (360) days after the date of grant.

On September 1, 2011, 219,000 incentive stock options were granted under the 2010 Stock Option and Incentive Plan to employees and officers as part of their employment agreements, at an exercise price of $1.25 per share. These options have a ten-year contractual term and shall vest and become exercisable as follows:

(i) twenty-five percent (25%) of the underlying shares on the first anniversary of the date of grant; and

(ii) one-forty eighth (1/48) of the underlying shares monthly thereafter.

On September 1, 2011, 200,000 non-qualified stock options were granted under the 2010 Stock Option and Incentive Plan to non-employee directors for services to be provided to the Company, at an exercise price of $1.25 per share. These options have a ten-year contractual term and shall vest and become exercisable as follows:

(i) 80,000 option shares vest on September 1, 2011;

(ii) 30,000 option shares vest on December 1, 2011;

(iii) 30,000 option shares vest on March 1, 2012;

(iv) 30,000 option shares vest on June 1, 2012; and

(v) 30,000 option shares vest on September 1, 2012.

On April 30, 2012, 19,757 non-qualified stock options were granted under the 2010 Stock Option and Incentive Plan to non-employee directors for serving as directors of the Company, at an exercise price of $6.00 per share. These options have a ten-year term and shall vest and become exercisable in full immediately as of the grant date.

**Indemnification Agreements**

The Company has entered into indemnification agreements with each of its directors and certain of its executive officers. These agreements require the Company to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to the Company, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified.

**Related Party Transaction Policies**

Related party transactions that the Company is required to disclose publicly under the federal securities laws will require prior approval of the Company's independent directors without the participation of any director who may have a direct or indirect interest in the transaction in question. Related parties include directors, nominees for director, principal stockholders, executive officers and members of their immediate families. For these purposes, a "transaction" will include all financial transactions, arrangements or relationships, ranging from extending credit to the provision of goods and services for value and will include any transaction with a company in which a director, executive officer immediate family member of a director or executive officer, or principal stockholder (that is, any person who beneficially owns five percent or more of any class of the Company's voting securities) has an interest by virtue of a 10% or greater equity interest. The Company's policies and procedures regarding related party transactions are not expected to be a part of a formal written policy, but rather, will represent a course of practice determined to be appropriate by the Board of Directors of the Company.

**PRINCIPAL STOCKHOLDERS**

The following table sets forth information as of March 31, 2013 regarding the beneficial ownership of our Common Stock by each of our executive officers and directors, individually and as a group and by each person who beneficially owns in excess of five percent of the Common Stock after giving effect to any exercise of warrants or options held by that person within 60 days after March 31, 2013. Unless indicated otherwise, the address for the beneficial holders is c/o Atossa Genetics Inc., 4105 East Madison Street, Suite 320, Seattle, Washington.

| Name of Beneficial Owner | Shares Beneficially Owned | Percentage of Common Stock Beneficially Owned (1) | |
|---|---|---|---|
| Steven C. Quay, M.D., Ph.D. (2) | 5,107,442 | 34.6 | % |
| Shu-Chih Chen, Ph.D. (3) | 4,383,346 | 30.0 | % |
| John Barnhart (4) | 185,342 | 1.3 | % |
| Kyle Guse | — | — | |
| Stephen Galli, M.D. (5) | 63,601 | * | |
| Alexander D. Cross, Ph.D. (6) | 134,293 | * | |
| H. Lawrence Remmel, Esq. (7) | 2,000 | * | |
| All Current Officers and Directors as a Group (7 persons) | 5,600,444 | 37.1 | % |

*Less than 1%

(1) Based on 14,508,019 shares of Common Stock issued and outstanding as of March 31, 2013.

(2) Consists of (i) 584,543 shares of Common Stock directly owned by Dr. Quay, (ii) 4,275,580 shares of Common Stock owned by Ensisheim and (iii) 247,319 shares of Common Stock issuable upon the exercise of stock options held by Dr. Quay and exercisable within 60 days after March 31, 2013. Drs. Quay and Chen share voting and investment power over the securities held by Ensisheim. Ensisheim is solely owned and controlled by Drs. Quay and Chen, and, as a result, Drs. Quay and Chen are deemed to be beneficial owners of the shares held by this entity.

(3) Consists of (i) 4,275,580 shares of Common Stock owned by Ensisheim and (ii) 107,766 shares of Common Stock issuable upon the exercise of stock options held by Dr. Chen and exercisable within 60 days after March 31, 2013. Drs. Quay and Chen share voting and investment power over the securities held by Ensisheim. Ensisheim is solely owned and controlled by Drs. Quay and Chen, and, as a result, Drs. Quay and Chen are deemed to be beneficial owners of the shares held by this entity.

(4) Consists of (i) 39,765 shares of Common Stock held by Mr. Barnhart (ii) 17,674 shares of Common Stock held by certain family members and for which Mr. Barnhart is the beneficial owner and (iii) 127,903 shares of Common Stock issuable upon the exercise of stock options held by Mr. Barnhart and exercisable within 60 days of March 31, 2013.

(5) Consists of 17,674 shares of Common Stock held by Dr. Galli and 45,927 shares of Common Stock issuable upon the exercise of stock options held by Dr. Galli and exercisable within 60 days of March 31, 2013.

(6) Consists of 88,366 shares of Common Stock held by the Alexander D. Cross Family Trust (Mr. Alexander D. Cross has sole voting and investment power over the securities held by the trust and as such, is deemed to be the

beneficial owner of the shares held by this entity) and 45,927 shares of Common Stock issuable upon the exercise of stock options held by Dr. Cross and exercisable within 60 days of March 31, 2013.

(7) Consists of 2,000 shares of Common Stock held by Mr. Remmel.

**DESCRIPTION OF SECURITIES TO BE REGISTERED**

Our authorized capital stock consists of 75,000,000 shares of Common Stock, $0.001 par value per share, and 10,000,000 shares of preferred stock, $0.001 par value per share.

As of the date of this prospectus, there were approximately 226 record holders of the Company's Common Stock. The number of shares of our Common Stock outstanding as of the date of this prospectus is 14,508,019 which excludes 1,049,847 shares issuable upon the exercise of options outstanding as of March 31, 2013 under our 2010 Stock Option and Incentive Plan, or 2010 Plan, as well as 900,427shares of Common Stock reserved for future issuance under our 2010 Plan, and 605,000 shares issuable upon exercise of options granted outside of our 2010 plan as inducement grants. The 2010 Plan contains an evergreen feature by which the initial 2010 Plan limit of 1,000,000 will increase on each January 1 by the lesser of (i) the 4% annual increase applicable to the 2010 Plan for such year or (ii) 500,000 shares. The 14,508,019 shares of Common Stock outstanding as of the date of this prospectus also excludes:

- 5,286,800 shares of Common Stock underlying outstanding warrants, 5,231,800 with an exercise price of $1.60 per share and 55,000 with an exercise price of $1.25 per share;
- 325,000 shares of Common Stock issuable upon the exercise of warrants with an exercise price of $5.00 per share issued in connection with our acquisition of substantially all the assets of Acueity Healthcare, Inc.;
- 60,000 shares of Common Stock issuable upon exercise of a warrant exercisable at $4.24 per share; and
- 2,500 shares of Common Stock issuable upon exercise of a warrant at an exercise price of $12.43 per share.

**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**

We have appointed VStock Transfer, LLC, 77 Spruce Street, Suite 201, Cedarhurst, New York 11516 (Telephone: (212) 828-8436; Facsimile (646) 536-3179) as our transfer agent and registrar.

**Listing**

Our Common Stock is listed on the NASDAQ Capital Market under the symbol “ATOS”. Our Common Stock began trading on the NASDAQ Capital Market on November 8, 2012 and, since that time through March 31, 2013, the high sales price has been $12.40 per share and the low price has been $3.44 per share.

**DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES**

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers, and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

**LEGAL MATTERS**

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

**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.

**WHERE YOU CAN FIND ADDITIONAL INFORMATION**

We are required to file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by us 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. Our filings with the SEC are also available to the public at the SEC's Internet web site at *http://www.sec.gov*.

We have filed a registration statement, of which this prospectus is a part, covering the securities offered hereby. As allowed by SEC rules, this prospectus does not include all of the information contained in the registration statement and the included exhibits, financial statements and schedules. You are referred to the registration statement, the included exhibits, financial statements and schedules for further information. This prospectus is qualified in its entirety by such other information.

**INCORPORATION OF CERTAIN INFORMATION BY REFERENCE**

The SEC allows us to "incorporate by reference" information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus.

We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (Commission File No. 001-35610)

- our annual report on Form 10-K for the year ended December 31, 2012, filed with the SEC on March 28, 2013; and
- our current reports on Form 8-K filed with the SEC on January 4, 2013, February 25, 2013, February 28, 2013 and March 13, 2013 (other than the portions of those reports not deemed to be filed).

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents. You should direct any requests for documents to Kyle Guse, Chief Financial Officer, Atossa Genetics Inc., 1616 Eastlake Ave. E., Suite 510, Seattle, Washington, 98102. Copies of the above reports may also be accessed from our web site at *http://www.atossagenetics.com*.

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.

**Up to 2,833,519 shares of Common Stock**

**ATOSSA GENETICS INC.**

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