

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

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ATOSSA GENETICS INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other
Jurisdiction of
incorporation or
organization)

26-4753208
(I.R.S. Employer
Identification No.)

107 Spring Street
Seattle, Washington 98104
Telephone: (866) 893-4927

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

Steven C. Quay
Chairman, Chief Executive Officer and President
107 Spring Street
Seattle, Washington 98104
Telephone: (866) 893-4927

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

Copies to:

Kyle Guse
Chief Financial Officer and General Counsel
107 Spring Street
Seattle, Washington 98104
(866) 893-4927

Ryan A. Murr
Gibson, Dunn & Crutcher LLP
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San Francisco, California 94105
Telephone: (415) 393-8373

Approximate Date of Commencement of Proposed Sale to the Public: From time to time after this Registration Statement becomes effective, as determined by the registrant.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

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

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered (1) (2)	Proposed maximum offering price per share (3)	Proposed maximum aggregate offering Price (3)	Amount of registration fee
Common Stock, par value \$0.18 per share	883,335	\$ 3.13	\$ 2,764,839	\$ 344.23

- (1) Represents shares of Common Stock, par value \$0.18 per share, which may be sold by the selling stockholders named in this registration statement. Pursuant to Rule 416 of the Securities Act of 1933, as amended, this registration statement also covers such an indeterminate amount of shares of Common Stock as may become issuable to prevent dilution resulting from stock splits, stock dividends and similar events.
- (2) Represents 883,335 shares of Common Stock that are issuable upon the exercise of certain warrants issued pursuant to a securities purchase agreement with the selling stockholders named herein.
- (3) Calculated pursuant to Rule 457(c), solely for the purpose of computing the amount of the registration fee, on the basis of the average of the high and low prices of the registrant's Common Stock quoted on the Nasdaq Capital Market on June 1, 2018.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated June 4, 2018

PRELIMINARY PROSPECTUS



Up to 883,335 Shares of Common Stock

Pursuant to this prospectus, the selling stockholders identified herein (the “**Selling Stockholders**”) are offering on a resale basis 883,335 shares of common stock, par value \$0.18 per share (the “**Common Stock**”), of Atossa Genetics Inc. (“**Atossa Genetics Inc.**,” “**we**,” “**our**” or the “**Company**”), a Delaware corporation, issuable upon the exercise of outstanding Class A and Class B warrants (the “**Warrants**”) purchased pursuant to a securities purchase agreement by and among the Company and the Selling Stockholders, dated December 20, 2017 (the “**Purchase Agreement**”). We will not receive any of the proceeds from the sale by the Selling Stockholders of the Common Stock. Upon any exercise of the Warrants by payment of cash, however, we will receive the exercise price of the Warrants.

The Selling Stockholders may sell or otherwise dispose of the Common Stock covered by this prospectus in a number of different ways and at varying prices. We provide more information about how the Selling Stockholders may sell or otherwise dispose of the Common Stock covered by this prospectus in the section entitled “Plan of Distribution” on page 8. Discounts, concessions, commissions and similar selling expenses attributable to the sale of Common Stock covered by this prospectus will be borne by the Selling Stockholders. We will pay all expenses (other than discounts, concessions, commissions and similar selling expenses) relating to the registration of the Common Stock with the Securities and Exchange Commission.

Our Common Stock is currently quoted on The NASDAQ Capital Market under the symbol “ATOS”. On June 1, 2018, the last reported sale price of our Common Stock on the NASDAQ Capital Market was \$3.05 per share.

Our principal executive offices are located at 107 Spring Street, Seattle, Washington 98104.

Investing in our securities involves risks. You should carefully consider the Risk Factors beginning on page 3 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 _____, 2018

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We have not, and the Selling Stockholder has not, authorized anyone to provide you with information other than that contained or incorporated by reference in this prospectus and any applicable prospectus supplement or amendment. We have not, and the Selling Stockholder has not, authorized any person to provide you with different information. This prospectus is not an offer to sell, nor is it an offer to buy, these securities in any jurisdiction where the offer is not permitted. The information contained or incorporated by reference in this prospectus and any applicable prospectus supplement or amendment is accurate only as of its date. Our business, financial condition, results of operations, and prospects may have changed since that date.

For investors outside the United States: Neither we nor the Selling Stockholders have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of securities and the distribution of this prospectus outside the United States.

Unless the context otherwise requires, references in this prospectus to “Atossa” “the Company,” “we,” “us” and “our” refer to Atossa Genetics Inc. Solely for convenience, our trademarks and tradenames referred to in this registration statement, may appear without the ® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and tradenames. All other trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

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 11 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. Unless indicated otherwise, all share numbers are expressed in this prospectus reflect the one-for-12 reverse stock split effected on April 20, 2018.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

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

- whether we can obtain approval from the U.S. Food and Drug Administration, or FDA, and foreign regulatory bodies, to commence our clinical studies and to sell, market and distribute our therapeutics and devices under development;
- our ability to successfully initiate and complete clinical trials of our pharmaceutical candidates under development, including endoxifen (Endoxifen; an active metabolite of Tamoxifen) and our intraductal microcatheters to administer therapeutics, including our study using fulvestrant;
- the success, cost and timing of our product and drug development activities and clinical trials, including whether the ongoing clinical study using our intraductal microcatheters to administer fulvestrant will enroll a sufficient number of subjects, if any, or be completed in a timely fashion or at all;
- our ability to contract with third-party suppliers, manufacturers and service providers, including clinical research organizations, and their ability to perform adequately;
- our ability to successfully develop and commercialize new therapeutics currently in development or that we might identify in the future and in the time frames currently expected;
- our ability to successfully defend litigation and other similar complaints that may be brought in the future, in a timely manner and within the coverage, scope and limits of our insurance policies;
- our ability to establish and maintain intellectual property rights covering our products;
- 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 capital sources;
- our ability to attract and retain key personnel; and
- our ability to raise capital.

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

Our Company

We are a clinical-stage pharmaceutical company focused on developing novel, proprietary therapeutics and delivery methods for the treatment of breast cancer and other breast conditions. We are developing Endoxifen with two routes of delivery: a topical formulation, applied like a lotion, for the treatment of a condition called mammographic breast density (or, MBD) and a breast disorder in men called gynecomastia; and an oral formulation for breast cancer survivors who do not benefit from taking oral tamoxifen, a current FDA-approved standard of care. We are also developing our patented intraductal microcatheter technology to potentially target the delivery of therapies, including fulvestrant, immunotherapies and Chimeric Antigen Receptor T-cell therapies (CAR-T therapies), directly to the site of breast cancer.

In 2017, we completed a Phase 1 clinical study of our proprietary oral and topical formulations of Endoxifen. All objectives were met: there were no clinically significant safety signals and no clinically significant adverse events, and both the oral and topical Endoxifen were well tolerated. In the topical arm of the study, low but measurable Endoxifen levels were detected in the blood in a dose-dependent fashion. In the oral arm of the study, participants exhibited dose-dependent Endoxifen levels that met or exceeded the published therapeutic level. The median time for patients in the study to reach the steady-state serum levels of Endoxifen while taking daily doses of oral Endoxifen was 7 days. Published literature indicates that it takes approximately 50-200 days for patients to reach steady-state Endoxifen levels when taking daily doses of oral tamoxifen.

We are currently conducting a Phase 2 study at Montefiore Medical Center, Bronx, New York, using our intraductal microcatheter technology to deliver fulvestrant. Our program to use our intraductal microcatheters to deliver CAR-T and other immunotherapies is in the research and development phase.

In March 2018, we expanded our breast health program by launching a mens' breast health initiative with enrollment opening in a Phase 1 study of our topical Endoxifen in men. The objectives of the placebo-controlled, repeat dose study of 24 healthy male volunteers are to assess the pharmacokinetics of proprietary topical Endoxifen dosage forms over 28 days, as well as to assess safety and tolerability. Depending on the results of this study, we plan to develop our topical Endoxifen for gynecomastia.

We plan to open enrollment in two Phase 2 studies of our proprietary Endoxifen in the first half of 2018: a study in Stockholm, Sweden using our topical Endoxifen to treat MBD and a study of our oral Endoxifen to treat patients who do not benefit from taking tamoxifen. We expect to complete enrollment in these studies in the second half of 2018.

Our key objectives are to advance our programs through Phase 2 trials and then evaluate further development independently or with partners.

We were incorporated in April of 2009 and our Common Stock is currently quoted on the NASDAQ Capital Market under the symbol "ATOS."

THE OFFERING

The Selling Stockholders identified in this prospectus are offering on a resale basis a total of 883,335 shares of Common Stock issuable upon the exercise of the Warrants.

Common Stock to be Offered by the Selling Stockholders Up to 883,335 shares.

Common Stock Outstanding Prior to This Offering 2,815,011 shares as of June 1, 2018.

Common Stock to be Outstanding After This Offering 3,698,346 shares.

Use of Proceeds We will not receive any proceeds from the sale of the Common Stock by the Selling Stockholders, except for the Warrant exercise price paid for the Common Stock offered hereby and issuable upon the exercise of the Warrants. See "Use of Proceeds" on page 4 of this prospectus.

Risk Factors This investment involves a high degree of risk. See "Risk Factors" for a discussion of factors you should consider carefully before making an investment decision.

Symbol on the Nasdaq Capital Market ATOS

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making an investment decision with respect to our securities, we urge you to carefully consider the risks described in the “Risk Factors” section of our Annual Report on Form 10-K for the year ended December 31, 2017, which is incorporated by reference into this prospectus. These risk factors relate to our business, intellectual property, regulatory matters, and ownership of our Common Stock. In addition, the following risk factors present material risks and uncertainties associated with the rights offering. The risks and uncertainties incorporated by reference into this prospectus or described below are not the only ones we face. Additional risks and uncertainties not presently known or which we consider immaterial as of the date hereof may also have an adverse effect on our business. If any of the matters discussed in the following risk factors were to occur, our business, financial condition, results of operations, cash flows or prospects could be materially adversely affected, the market price of our securities could decline and you could lose all or part of your investment in our securities.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the Common Stock by the Selling Stockholders. The shares offered hereby are issuable upon the exercise of the Warrants. Upon exercise of such Warrants we will receive the applicable cash exercise price paid by the holders of the Warrants.

DETERMINATION OF OFFERING PRICE

The prices at which the shares of Common Stock covered by this prospectus may actually be sold will be determined by the prevailing public market price for shares of our Common Stock, by negotiations between the Selling Stockholders and buyers of our Common Stock in private transactions or as otherwise described in “Plan of Distribution.”

SELLING STOCKHOLDERS

This prospectus covers the possible resale by the Selling Stockholders identified in the table below of 883,335 shares of Common Stock issuable upon the exercise of the Warrants. The Selling Stockholders acquired the Warrants pursuant to the Purchase Agreement and we are filing the registration statement of which this prospectus is a part pursuant to the provisions of the Purchase Agreement.

The Selling Stockholders may sell some, all or none of their shares of Common Stock. We do not know how long the Selling Stockholders will hold the Warrants, whether any will exercise the Warrants, and upon such exercise, how long such Selling Stockholders will hold the shares of Common Stock before selling them, and we currently have no agreements, arrangements or understandings with the Selling Stockholders regarding the sale of any of the shares.

The following table presents information regarding the Selling Stockholders and the shares that each may offer and sell from time to time under this prospectus. The table is prepared based on information supplied to us by the Selling Stockholders, and reflects their respective holdings as of June 1, 2018. No Selling Stockholder nor any affiliate of such Selling Stockholder has or have held a position or office, or had any other material relationship, with us or any of our predecessors or affiliates. Beneficial ownership is determined in accordance with Section 13(d) of the Exchange Act and Rule 13d-3 thereunder. The percentage of shares beneficially owned prior to the offering is based on 2,815,011 shares of our Common Stock actually outstanding as of June 1, 2018.

Selling Stockholder	Shares Beneficially Owned Before this Offering	Percentage of Outstanding Shares Beneficially Owned Before this Offering	Shares to be Sold in this Offering	Percentage of Outstanding Shares Beneficially Owned After this Offering
Bellridge Capital, LP.(1)	125,000	4.44%	125,000	0.00%
Bigger Capital Fund, LP(2)	92,594	3.29%	92,594	0.00%
Brio Capital Master Fund Ltd.(3)	138,334	4.91%	138,334	0.00%
Hudson Bay Master Fund Ltd.(4)	154,167(5)	5.48%	154,167	0.00%
Intracoastal Capital, LLC(6)	164,908(7)	5.86%	164,908	0.00%
L1 Capital Global Opportunities Master Fund(8)	383,334	13.62%	191,667	5.18%
PoC Capital, LLC(9)	16,668	0.59%	16,668	0.00%

(1) Consists of Class A Warrants to purchase 62,500 shares of Common Stock and Class B Warrants to purchase 62,500 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(2) Consists of Class A Warrants to purchase 46,297 shares of Common Stock and Class B Warrants to purchase 46,297 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(3) Consists of Class A Warrants to purchase 69,167 shares of Common Stock and Class B Warrants to purchase 69,167 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(4) Hudson Bay Capital Management LP, the investment manager of Hudson Bay Master Fund Ltd., has voting and investment power over these securities. Sander Gerber is the managing member of Hudson Bay Capital GP LLC, which is the general partner of Hudson Bay Capital Management LP. Each of Hudson Bay Master Fund Ltd. and Sander Gerber disclaims beneficial ownership over these securities.

(5) Consists of Class A Warrants to purchase 77,083 shares of Common Stock and Class B Warrants to purchase 77,083 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(6) Mitchell P. Kopin (“Mr. Kopin”) and Daniel B. Asher (“Mr. Asher”), each of whom are managers of Intracoastal Capital LLC (“Intracoastal”), have shared voting control and investment discretion over the securities reported herein that are held by Intracoastal. As a result, each of Mr. Kopin and Mr. Asher may be deemed to have beneficial ownership (as determined under Section 13(d) of the Exchange Act) of the securities reported herein that are held by Intracoastal.

(7) Consists of Class A Warrants to purchase 82,454 shares of Common Stock and Class B Warrants to purchase 82,454 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(8) Consists of 191,667 shares of Common Stock and Class A Warrants to purchase 95,834 shares of Common Stock and Class B Warrants to purchase 95,833 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

(9) Consists of Class A Warrants to purchase 8,334 shares of Common Stock and Class B Warrants to purchase 8,334 shares of Common Stock, each exercisable within 60 days of June 1, 2018.

PLAN OF DISTRIBUTION

The Common Stock offered by this prospectus is being offered by the Selling Stockholders. The Common Stock may be sold or distributed from time to time by each 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 Common Stock offered by this prospectus could 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.

The Selling Stockholders also may resell all or a portion of the common shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, as amended (the "Securities Act"), as permitted by that rule, or Section 4(a)(1) under the Securities Act, if available, rather than under this prospectus, provided that they meet the criteria and conform to the requirements of those provisions.

In connection with sales of the Common Stock, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the Common Stock in the course of hedging in positions they assume. The Selling Stockholders may also sell Common Stock short and if such short sale shall take place after the date that this prospectus is declared effective by the Commission, the Selling Stockholders may deliver Common Stock covered by this prospectus to close out short positions and to return borrowed shares in connection with such short sales. The selling stockholders may also loan or pledge common shares to broker-dealers that in turn may sell such shares, to the extent permitted by applicable law. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions for the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). Notwithstanding the foregoing, the Selling Stockholders have been advised that they may not use shares registered on this registration statement to cover short sales of our Common Stock made prior to the date the registration statement, of which this prospectus forms a part, has been declared effective by the SEC.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the Warrants or shares of Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the common shares from time to time pursuant to this prospectus or any amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act, amending, if necessary, the list of selling stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus. The Selling Stockholders also may transfer and donate the shares of Common Stock in other circumstances in which case the transferees, donees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

To the extent required, the shares of Common Stock to be sold, the names of the Selling Stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

Under the securities laws of some states, the Common Stock may be sold in such states only through registered or licensed brokers or dealers. In addition, in some states the common shares may not be sold unless such shares have been registered or qualified for sale in such state or an exemption from registration or qualification is available and is complied with.

There can be no assurance that any Selling Stockholder will sell any or all of the Common Stock registered pursuant to the registration statement, of which this prospectus forms a part.

Each Selling Stockholder and any other person participating in such distribution will be subject to applicable provisions of the Exchange Act, and the rules and regulations thereunder, including, without limitation, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the Common Stock by the Selling Stockholder and any other participating person. Regulation M may also restrict the ability of any person engaged in the distribution of the shares of Common Stock to engage in market-making activities with respect to the Common Stock. All of the foregoing may affect the marketability of the Common Stock and the ability of any person or entity to engage in market-making activities with respect to the Common Stock.

We will pay all expenses of the registration of the Common Stock, including, without limitation, SEC filing fees and expenses of compliance with state securities or “blue sky” laws reasonably agreed to in writing by us; *provided, however*, that each Selling Stockholder will pay all underwriting discounts and selling commissions, if any, and any legal expenses incurred by it.

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

Our Common Stock is quoted on the NASDAQ Capital Market under the symbol “ATOS”.

EXPERTS

The consolidated financial statements as of December 31, 2017 and 2016 and for each of the two years in the period ended December 31, 2017 incorporated by reference in this prospectus have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm (the report on the consolidated financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern) incorporated herein by reference in the prospectus, given on the authority of said firm as experts in auditing and accounting.

LEGAL MATTERS

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

WHERE YOU CAN FIND ADDITIONAL INFORMATION

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

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

INFORMATION INCORPORATED BY REFERENCE

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

1. The Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the SEC on March 8, 2018;
2. The Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, filed with the SEC on May 14, 2018;
3. The Company's Definitive Proxy Statement on Schedule 14A, filed with the SEC on March 20, 2018;
4. The Company's Current Reports on Form 8-K, filed with the SEC on February 1, 2018, February 21, 2018, April 17, 2018, April 23, 2018 and May 31, 2018;
5. The description of the Company's Common Stock contained in the registration statement on Form 8-A filed with the Commission on July 24, 2012 pursuant to Section 12 of the Exchange Act, including any amendment or report filed for the purpose of updating that description; and
6. All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, after the date of the original Registration Statement and prior to effectiveness of the registration statement of which this prospectus is a part, provided that all documents "furnished" by the Company to the SEC and not "filed" are not deemed incorporated by reference herein.

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

The Company will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus incorporates. Requests should be directed to the Secretary at Atossa Genetics Inc., 107 Spring Street, Seattle, Washington, 98104, phone (866) 893-4927. You may also find these documents in the "Investor Relations" section of our website, www.atossagenetics.com. The information on our website is not incorporated into this prospectus.

PROSPECTUS

Up to 883,335 Shares of Common Stock
, 2018

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 13. Other Expenses of Issuance and Distribution

The following are the estimated expenses of the distribution of the Shares registered hereunder on Form S-1 (the amounts set forth above are estimate, except the SEC Registration Fee:

Registration Fee—Securities and Exchange Commission	\$ 345
FINRA Filing Fee	\$ 915
Accountants Fees and Expenses	\$ 5,000
Legal Fees and Expenses	\$ 10,000
Miscellaneous	\$ 2,500
Total	\$ 18,760

ITEM 14. Indemnification of Directors and Officers.

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

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

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

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

In addition, our bylaws provide that:

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

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

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

ITEM 15. Recent Sales of Unregistered Securities.

In the first quarter of 2016, Ensisheim Partners LLC, which is under sole ownership and control by Steven Quay, CEO, President and Chairman of the Board, and Shu-Chih Chen, Director, purchased a total of 5,333 shares of Common Stock directly from the Company in at-the-market transactions which were approved by the Company's audit committee at purchase prices of \$3.30 to \$7.95 per share. The issuance of the shares 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.

On May 25, 2016 we entered into the Aspire Purchase Agreement, which provides that we may sell up to \$10 million in Common Stock to Aspire Capital over the 30-month term of the agreement, subject to the terms and conditions set out in the Purchase Agreement, and pursuant to which we issued 49,736 shares of Common Stock to Aspire as a commitment fee. The issuance of the commitment fee 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.

On December 20, 2017, concurrently with the public offering that we conducted on that same date and pursuant to a purchase agreement, we commenced a private placement whereby we issued and sold Class A warrants (the "Class A Warrants") and Class B warrants (the "Class B Warrants" and, together with the Class A Warrants, the "Warrants"), exercisable for an aggregate of 10,600,000 shares of Common Stock, at a price of \$0.315 per share (the "Private Placement"), generating aggregate gross proceeds of \$3,339,000. Maxim Group LLC acted as placement agent for the Private Placement and received a commission of \$333,900, which is an amount equal to seven percent of the aggregate gross proceeds raised in the Private Placement and a concurrent public offering and sale of 5,300,000 shares of Company Common Stock at a public offering price of \$0.27 per share. The Warrants will become exercisable six months from issuance. The Class A Warrants will expire eight months from issuance, while the Class B Warrants will expire on the first anniversary of the date of issuance. None of the Warrants nor the shares issuable upon exercise of such Warrants have been registered with the Securities and Exchange Commission. The Private Placement closed on December 22, 2017. The issuance of the Warrants 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.

ITEM 16. Exhibit Index.**EXHIBIT INDEX**

Exhibit No.	Description	Form	Date
1.1	Form of Dealer-Manager Agreement	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 1.1	April 23, 2018
3.1	Amended and Restated Certificate of Incorporation of Atossa Genetics Inc	Registration Statement on Form S-1, as Exhibit 3.2	June 11, 2012
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation of Atossa Genetics Inc.	Current Report on Form 8-K, as Exhibit 4.1	August 26, 2016
3.3	Certificate of Amendment to Amended and Restated Certificate of Incorporation of Atossa Genetics Inc.	Current Report on Form 8-K, as Exhibit 4.1	April 23, 2018
3.4	Bylaws of Atossa Genetics Inc	Registration Statement on Form S-1, as Exhibit 3.4	June 11, 2012
3.5	Amendment to Bylaws of Atossa Genetics Inc.	Current Report on Form 8-K, as Exhibit 3.1	December 20, 2012
4.1	Form of Certificate of Designation of Preference, Rights and Limitations of Series B Convertible Preferred Stock	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 4.1	April 23, 2018
4.2	Warrant Agency Agreement between VStock Transfer, LLC and Atossa Genetics Inc., dated as of May 30, 2018	Current Report on Form 8-K, as Exhibit 4.1	May 31, 2018
4.3	Form of Warrant Certificate	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 4.3	April 23, 2018
4.4	Form of Non-Transferable Subscription Rights Certificate	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 4.4	April 23, 2018
4.5	Registration Rights Agreement, dated as of May 25, 2016, by and between the Company and Aspire Capital Fund, LLC.	Current Report on Form 8-K, as Exhibit 4.1	May 27, 2016
4.6	Form of Warrant Agreement from January 2014 Public Offering	Current Report on Form 8-K, as Exhibit 4.1	January 24, 2014
4.7	Form of Warrant issued to Dawson James Securities Inc. in January 2014	Current Report on Form 8-K, as Exhibit 4.2	January 24, 2014
4.8	Rights Agreement dated as of May 19, 2014, by and between the Company and VStock Transfer LLC, as rights agent, which includes as Exhibit B the Form of Rights Certificate	Current Report on Form 8-K, as Exhibit 4.1	May 22, 2014
4.9	Form of Common Stock Purchase Warrant A	Current Report on Form 8-K, as Exhibit 4.1	December 22, 2017
4.10	Form of Commons Stock Purchase Warrant B	Current Report on Form 8-K, as Exhibit 4.2	December 22, 2017
5.1	Opinion of Gibson, Dunn & Crutcher LLP	Filed herewith	
8.1	Tax Opinion of Gibson, Dunn & Crutcher LLP	Amendment No. 2 to Registration Statement on Form S-1, as Exhibit 8.1	May 3, 2018

<u>10.1#</u>	<u>Restated and Amended Employment Agreement with Steven Quay</u>	Registration Statement on Form S-1, as Exhibit 10.3	February 14, 2012
<u>10.2</u>	<u>Form of Indemnification Agreement</u>	Registration Statement on Form S-1, as Exhibit 10.5	May 21, 2012
<u>10.3#</u>	<u>Form of Incentive Stock Option Agreement</u>	Registration Statement on Form S-1, as Exhibit 10.7	June 11, 2012
<u>10.4#</u>	<u>Form of Non-Qualified Stock Option Agreement for Employees</u>	Registration Statement on Form S-1, as Exhibit 10.8	June 11, 2012
<u>10.5#</u>	<u>Form of Non-Qualified Stock Option Agreement for Non-Employee Directors</u>	Registration Statement on Form S-1, as Exhibit 10.9	June 11, 2012
<u>10.6</u>	<u>Form of Subscription Agreement</u>	Registration Statement on Form S-1, as Exhibit 10.10	February 14, 2012
<u>10.7</u>	<u>Patent Assignment Agreement by and between the Company and Ensisheim Partners, LLC</u>	Registration Statement on Form S-1, as Exhibit 10.12	April 6, 2012
<u>10.8#</u>	<u>Form of Restricted Stock Award Agreement</u>	Registration Statement on Form S-1, as Exhibit 10.13	June 11, 2012
<u>10.9</u>	<u>Office Lease with Sander Properties, LLC, dated March 4, 2011</u>	Registration Statement on Form S-1, as Exhibit 10.20	April 6, 2012
<u>10.10</u>	<u>Office Lease with Sander Properties, LLC, dated July 8, 2011</u>	Registration Statement on Form S-1, as Exhibit 10.21	April 6, 2012
<u>10.11</u>	<u>Office Lease with Sander Properties, LLC, dated September 20, 2011</u>	Registration Statement on Form S-1, as Exhibit 10.22	April 6, 2012
<u>10.12</u>	<u>Sublease with Fred Hutchinson Cancer Research Center, dated December 9, 2011</u>	Registration Statement on Form S-1, as Exhibit 10.23	April 6, 2012
<u>10.13#</u>	<u>Amended and Restated Employment Agreement between the Company and Kyle Guse dated May 18, 2016</u>	Current Report on Form 8-K, as Exhibit 10.1	May 20, 2016
<u>10.14</u>	<u>Office space Lease dated July 18, 2013 between Alexandria (ARE) and the Company</u>	Annual Report on Form 10-K, as Exhibit 10.33	March 27, 2014
<u>10.15</u>	<u>Common Stock Purchase Agreement, between the Company and Aspire Capital Fund, LLC, dated as of November 11, 2015</u>	Quarterly Report on Form 10-Q, as Exhibit 10.1	November 12, 2015
<u>10.16</u>	<u>Common Stock Purchase Agreement, between the Company and Aspire Capital Fund, LLC, dated as of May 25, 2016</u>	Current Report on Form 8-K, as Exhibit 10.1	May 27, 2016

<u>10.17</u>	<u>Lab and Office space Lease Agreement dated March 24, 2014 between Alexandria (ARE) and the Company</u>	Annual Report on Form 10-K, as Exhibit 10.33	March 27, 2014
<u>10.18</u>	<u>Office Space Assignment and Assumption of Lease and Consent to Assignment dated August 8, 2014 between Legacy Group, Inc. and the Company</u>	Quarterly Report on Form 10-Q, as Exhibit 10.1	August 12, 2014
<u>10.19</u>	<u>Intellectual Property License Agreement between Atossa Genetics Inc. and Besins Healthcare Luxembourg SARL, dated May 14, 2015</u>	Current Report on Form 8-K, as Exhibit 10.1	May 18, 2015
<u>10.20</u>	<u>Settlement and Termination of License Agreement between Besins Healthcare Luxembourg SARL and its Affiliates and Atossa Genetics, Inc. dated August 4, 2016</u>	Current Report on Form 8-K, as Exhibit 10.1	August 5, 2016
<u>10.21</u>	<u>Stock Purchase Agreement by and among the Company, the National Reference Laboratory for Breast Health, Inc. and NRL Investment Group, LLC, dated December 16, 2015</u>	Current Report on Form 8-K, as Exhibit 10.1	December 16, 2015
<u>10.22</u>	<u>Office space Lease Agreement dated October 1, 2015 between Hughes-Northwest and the Company.</u>	Annual Report on Form 10-K, as Exhibit 10.35	March 30, 2016
<u>10.23</u>	<u>2010 Stock Option and Incentive Plan, as amended</u>	Quarterly Report on Form 10-Q, as Exhibit 10.2	May 11, 2017
<u>10.24</u>	<u>Placement agreement between Atossa Genetics Inc. and Maxim Corp. as representative of the Purchasers, dated December 20, 2017</u>	Current Report on Form 8-K, as Exhibit 10.1	December 22, 2017
<u>10.25</u>	<u>Securities Purchase Agreement between Atossa Genetics Inc. and each purchaser, dated as of December 20, 2017</u>	Current Report on Form 8-K, as Exhibit 10.1	December 22, 2017
<u>23.1</u>	<u>Consent of BDO USA LLP</u>	Filed herewith	
<u>23.2</u>	<u>Consent of Gibson, Dunn & Crutcher LLP</u>	Filed as part of Exhibit 5.1 to this Registration Statement on Form S-1	
<u>24.1</u>	<u>Powers of Attorney</u>	<u>Filed herewith</u>	
<u>99.1</u>	<u>Form of Instructions as to Use of Subscription Rights Certificates</u>	Amendment No. 2 to Registration Statement on Form S-1, as Exhibit 99.1	May 3, 2018
<u>99.2</u>	<u>Form of Letter to Shareholders Who Are Record Holders</u>	Amendment No. 2 to Registration Statement on Form S-1, as Exhibit 99.2	May 3, 2018
<u>99.3</u>	<u>Form of Letter to Brokers, Dealers, Banks and Other Nominees</u>	Amendment No. 2 to Registration Statement on Form S-1, as Exhibit 99.3	May 3, 2018
<u>99.4</u>	<u>Form of Broker Letter to Clients Who Are Beneficial Holders</u>	Amendment No. 2 to Registration Statement on Form S-1, as Exhibit 99.4	May 3, 2018
<u>99.5</u>	<u>Form of Beneficial Owner Election Form</u>	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 99.5	April 23, 2018
<u>99.6</u>	<u>Form of Nominee Holder Certification</u>	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 99.6	April 23, 2018
<u>99.7</u>	<u>Form of Notice of Important Tax Information</u>	Amendment No. 1 to Registration Statement on Form S-1, as Exhibit 99.7	April 23, 2018

Indicates management contract or compensatory plan, contractor or agreement.

ITEM 17. Undertakings.

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in this Registration Statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of this Registration Statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act, as amended, 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 SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue. The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act ("Act") in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Seattle, State of Washington, on June 4, 2018.

Atossa Genetics Inc.

By: /s/ Steven C. Quay

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

Chairman, Chief Executive Officer and President

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints Steven C. Quay and Kyle Guse as his or her true and lawful attorney-in-fact and agent, with full power of substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign this registration statement and any and all amendments thereto, including post-effective amendments, and to file the same, with all exhibits thereto, any related registration filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all the said attorney-in-fact and agent or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Office(s)</u>	<u>Date</u>
<u>/s/ Steven C. Quay</u> Steven C. Quay, M.D., Ph.D.	Chairman, Chief Executive Officer and President (Principal Executive Officer)	June 4, 2018
<u>/s/ Kyle Guse</u> Kyle Guse	Chief Financial Officer, General Counsel and Secretary (Principal Financial and Accounting Officer)	June 4, 2018
<u>/s/ Shu-Chih Chen</u> Shu-Chih Chen, Ph.D.	Director	June 4, 2018
<u>/s/ Richard Steinhart</u> Richard Steinhart	Director	June 4, 2018
<u>/s/ Stephen J. Galli</u> Stephen J. Galli, M.D.	Director	June 4, 2018
<u>/s/ H. Lawrence Rimmel</u> H. Lawrence Rimmel	Director	June 4, 2018
<u>/s/ Gregory L. Weaver</u> Gregory L. Weaver	Director	June 4, 2018

GIBSON DUNN

Gibson, Dunn & Crutcher LLP

555 Mission Street
San Francisco, CA 94105-0921
Tel 415.393.8200
www.gibsondunn.com

Client: 05637-00001

June 4, 2018

Atossa Genetics Inc.
107 Spring Street
Seattle, Washington 98104

Re: *Atossa Genetics Inc.*
Registration Statement on Form S-1

Ladies and Gentlemen:

We have examined the Registration Statement on Form S-1, as amended (the "Registration Statement"), of Atossa Genetics Inc., a Delaware corporation (the "Company"), filed with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), in connection with the offering by the Company of up to 833,335 shares of the Company's common stock, par value \$0.18 per share (the "Shares").

In arriving at the opinion expressed below, we have examined originals, or copies certified or otherwise identified to our satisfaction as being true and complete copies of the originals, of specimen common stock certificates, and such other documents, corporate records, certificates of officers of the Company and of public officials and other instruments as we have deemed necessary or advisable to enable us to render the opinions set forth below. In our examination, we have assumed without independent investigation the genuineness of all signatures, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals and the conformity to original documents of all documents submitted to us as copies.

Based upon the foregoing, and subject to the assumptions, exceptions, qualifications and limitations set forth herein, we are of the opinion that the Shares, when issued against payment therefor as set forth in the Registration Statement, will be validly issued, fully paid and non-assessable.

We consent to the filing of this opinion as an exhibit to the Registration Statement, and we further consent to the use of our name under the caption "Legal Matters" in the Registration Statement and the prospectus that forms a part thereof. In giving these consents, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the Rules and Regulations of the Commission.

Very truly yours,

/s/ GIBSON, DUNN & CRUTCHER

Beijing • Brussels • Century City • Dallas • Denver • Dubai • Frankfurt • Hong Kong • Houston • London • Los Angeles • Munich
New York • Orange County • Palo Alto • Paris • San Francisco • São Paulo • Singapore • Washington, D.C.

Consent of Independent Registered Public Accounting Firm

Atossa Genetics Inc.
Seattle, Washington

We hereby consent to the incorporation by reference in the Prospectus constituting a part of this Registration Statement on Form S-1 of our report dated March 8, 2018, relating to the consolidated financial statements of Atossa Genetics Inc. (the “Company”), appearing in the Company’s Annual Report on Form 10-K for the year ended December 31, 2017. Our report contains an explanatory paragraph regarding the Company’s ability to continue as a going concern.

We also consent to the reference to us under the caption “Experts” in the Prospectus.

/s/ BDO USA, LLP
Seattle, Washington

June 4, 2018
