TRANSGENOMIC INC
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Registration No. 333-209112

PROSPECTUS

Transgenomic, Inc.

1,111,952 Shares of Common Stock

This prospectus relates to the resale by the investors listed in the section of this prospectus entitled “Selling Stockholders”, or the Selling Stockholders, of up to 1,111,952 shares of our common stock, par value $0.01 per share, or the Common Stock. The 1,111,952 shares of Common Stock are comprised of: (i) 580,346 shares of Common Stock, or the Common Shares, that were previously issued by us upon conversion of certain convertible promissory notes, or the Private Placement Notes, issued by us in a private placement transaction, or the Private Placement, in December 2014 and January 2015, (ii) up to 488,565 shares of Common Stock that may be issued upon conversion of the outstanding Private Placement Notes, assuming full conversion of the Private Placement Notes at December 31, 2016, or the Maturity Date, and (iii) up to 43,041 shares of Common Stock that may be issued upon conversion of an outstanding convertible promissory note issued, upon the same terms and conditions as the Private Placement Notes, to the sole placement agent for the Private Placement, or the Placement Agent Note. The Private Placement Notes and the Placement Agent Note are sometimes referred to in this prospectus, together, as the Notes. The Private Placement Notes were issued by us in an aggregate principal amount of $1,675,000, and the Placement Agent Note was issued by us in an aggregate principal amount of $46,250, in each case pursuant to the terms of an Unsecured Convertible Promissory Note Purchase Agreement, dated as of December 31, 2014, by and among us and the Selling Stockholders, or the Note Purchase Agreement. Each of the Notes accrues interest at a rate of 6% per year and matures on the Maturity Date. The outstanding principal and unpaid interest accrued under each Note is convertible into shares of Common Stock as follows: (i) commencing upon the date of issuance of the Note (but no earlier than January 1, 2015), the investor holding such Note became entitled to convert, on a one-time basis, up to 50% of the outstanding principal and unpaid interest accrued under the Note, into shares of Common Stock at a conversion price equal to the lesser of (a) the average closing price of the Common Stock on the principal securities exchange or securities market on which the Common Stock is then traded, or the Market, for the 20 consecutive trading days immediately preceding the date of conversion, and (b) $2.20 (subject to adjustment for stock splits, stock dividends, other distributions, recapitalizations and the like); and (ii) commencing February 15, 2015, the investor holding such Note became entitled to convert, on a one-time basis, any or all of the remaining outstanding principal and unpaid interest accrued under the Note, into shares of Common Stock at a conversion price equal to 85% of the average closing price of the Common Stock on the Market for the 15 consecutive trading days immediately preceding the date of conversion, or, collectively, the Note Conversion Rate. We are registering the resale of the Common Shares and the maximum number of shares of Common Stock that may be issued upon conversion of the outstanding Notes, assuming full conversion of the Notes at the Maturity Date, or the Note Shares, as required by the Note Purchase Agreement. The Common Shares and the Note Shares are sometimes referred to in this prospectus, together, as the Securities.

Our registration of the Securities covered by this prospectus does not mean that the Selling Stockholders will offer or sell any of the Securities. The Selling Stockholders may sell the Securities covered by this prospectus in a number of different ways and at varying prices. For additional information on the possible methods of sale that may be used by the Selling Stockholders, you should refer to the section of this prospectus entitled "Plan of Distribution" beginning on page 8 of this prospectus. We will not receive any of the proceeds from the Securities sold by the Selling Stockholders.

No underwriter or other person has been engaged to facilitate the sale of the Securities in this offering. The Selling Stockholders may be deemed underwriters of the Securities that they are offering. We will bear all costs, expenses and fees in connection with the registration of the Securities. The Selling Stockholders will bear all commissions and discounts, if any, attributable to their respective sales of the Securities.

You should read this prospectus, any applicable prospectus supplement and any related free writing prospectus carefully before you invest.

Investing in our Common Stock involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "Risk Factors" contained in this prospectus, any applicable prospectus supplement and in any applicable free writing prospectuses, and under similar headings in the documents that are incorporated by reference into this prospectus.

Our Common Stock is currently listed on the NASDAQ Capital Market under the symbol "TBIO". On February 5, 2016, the last reported sales price for our Common Stock was $0.678 per share.

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 February 8, 2016.

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ABOUT THIS PROSPECTUS

You should rely only on the information we have provided or incorporated by reference into this prospectus, any applicable prospectus supplement and any related free writing prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the shares of Common Stock offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security.

The Selling Stockholders are offering the Common Stock only in jurisdictions where such issuances are permitted. The distribution of this prospectus and the issuance of the Common Stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the issuance of the Common Stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, the Common Stock offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, under which the Selling Stockholders may offer from time to time up to an aggregate of 1,111,952 shares of our Common Stock in one or more offerings. If required, each time a Selling Stockholder offers Common Stock, in addition to this prospectus, we will provide you with a prospectus supplement that will contain specific information about the terms of that offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to that offering. We may also use a prospectus supplement and any related free writing prospectus to add, update or change any of the information contained in this prospectus or in documents we have incorporated by reference. This prospectus, together with any applicable prospectus supplements, any related free writing prospectuses and the documents incorporated by reference into this prospectus, includes all material information relating to this offering. To the extent that any statement that we make in a prospectus supplement is inconsistent with statements made in this prospectus, the statements made in this prospectus will be deemed modified or superseded by those made in a prospectus supplement. Please carefully read both this prospectus and any prospectus supplement together with the additional information described below under “Important Information Incorporated by Reference”.

SUMMARY

This summary highlights selected information contained elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, any applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our Common Stock discussed under the heading "Risk Factors" contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus forms a part. Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus to "Transgenomic", "the Company", "we", "us", "our" or similar references mean Transgenomic, Inc. together with its consolidated subsidiary.

Transgenomic, Inc.

We are a global biotechnology company advancing personalized medicine in cardiology, oncology and inherited diseases through advanced diagnostic technologies, such as our revolutionary multiplexed ICE COLD-PCR™, or MX-ICP, technology and our unique genetic tests provided through our Laboratory Services business. We also provide specialized clinical and research services to biopharmaceutical companies developing targeted therapies.

Our diagnostic technologies are designed to improve medical diagnoses and patient outcomes. Our strategy seeks to optimize, through channel partnerships, the commercial potential of our assets aimed at large genetic testing markets. This allows us to focus resources on our areas of strength, including developing and marketing tests for rare genetic disorders and other genetic-mediated conditions in the U.S., where we are a market leader, and developing biomarkers, genetic tests and companion diagnostics using proprietary technology that is unsurpassed for the identification and detection of low-level genetic mutations and is a prerequisite for improved diagnosis and treatment of cancer and other diseases.

MX-ICP is a simple, proprietary technology that amplifies the ability to detect genetic mutations by 100 - 400 fold. This technology has been validated internally on all currently available sequencing platforms, including Sanger, Next Gen Sequencing and Digital PCR. By enhancing the level of detection of genetic mutations and suppressing the normal, "wild-type" DNA, several benefits are provided. It is generally understood that most current technologies are unable to consistently identify mutations that occur in less than approximately 5% of a sample. However, many mutations found at much lower levels, even down to 0.01%, are known to be clinically relevant and can have significant consequences to a patient: both in terms of how they will respond to a given drug or treatment and how a given tumor is likely to change over time. More importantly, in our view, significantly improving the level of detection while using blood, saliva and even urine as a source for DNA, rather than depending on painful, expensive

and potentially dangerous tumor biopsies, is an important advancement in patient care with respect to cancer detection, treatment and monitoring and can result in significant cost savings for the healthcare system by replacing invasive procedures with the simple collection of blood or other bodily fluids. By broadening the types of samples that can be used for testing and allowing all sequencing platforms to provide improved identification of low level mutations, MX-ICP has the potential to make testing more patient friendly, enable genetic monitoring of disease progression, effectively guide treatment protocols, and reduce the overall cost of diagnosis and monitoring while improving patient outcomes.

Our operations are organized as one business segment, our Laboratory Services segment. Our laboratories specialize in genetic testing for cardiology, neurology and mitochondrial disorders, and for oncology. Our Patient Testing laboratories located in New Haven, Connecticut and Omaha, Nebraska are certified under the Clinical Laboratory Improvement Amendment as high complexity laboratories and our Omaha facility is accredited by the College of American Pathologists. Our Biomarker Identification laboratory located in Omaha provides pharmacogenomics research services supporting Phase II and Phase III clinical trials conducted by pharmaceutical and biotechnology companies. Our laboratories employ a variety of genomic testing service technologies, including our new, high performance MX-ICP technology. ICE COLD-PCR is a proprietary ultra-high sensitivity platform technology with breakthrough potential to enable wide adoption of personalized, precision medicine in cancer and other diseases. It can be run in any laboratory that contains standard PCR systems. MX-ICP enables detection of multiple known and unknown mutations from virtually any sample type, including tissue biopsies, blood, urine, saliva, cell-free DNA and circulating tumor cells at levels greater than 1,000-fold higher than standard DNA sequencing techniques. It is easy to implement and use within existing workflows.

For a complete description of our business, financial condition, results of operations and other important information, we refer you to our filings with the Securities and Exchange Commission, or the SEC, that are incorporated by reference in this prospectus, including our Annual Report on Form 10-K for the year ended December 31, 2014. For instructions on how to find copies of these documents, see “Where You Can Find More Information”.

We were incorporated in Delaware on March 6, 1997. Our principal office is located at 12325 Emmet Street, Omaha, Nebraska 68164 and our telephone number is 402-452-5400. Our website address is www.transgenomic.com. Information on our website, or that can be accessed through our website, is not incorporated by reference into this prospectus and does not constitute part of this prospectus.

RISK FACTORS

Investing in shares of our Common Stock involves a high degree of risk. Before making an investment decision, you should carefully consider the risks described under “Risk Factors” in any applicable prospectus supplement and in our most recent Annual Report on Form 10-K, or any updates in our Quarterly Reports on Form 10-Q, together with all of the other information appearing in or incorporated by reference into this prospectus and any applicable prospectus supplement, before deciding whether to purchase any of the Common Stock being offered. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of shares of our Common Stock could decline due to any of these risks, and you may lose all or part of your investment.

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DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into this prospectus may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, about the Company and its subsidiaries. These forward-looking statements are intended to be covered by the safe harbor for forward-looking statements provided by the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not statements of historical fact, and can be identified by the use of forward-looking terminology such as “believes”, “expects”, “may”, “will”, “could”, “should”, “projects”, “plans”, “goal”, “targets”, “potential”, “estimates”, “pro forma”, “seek “anticipates” or the negative thereof or comparable terminology. Forward-looking statements include discussions of strategy, financial projections, guidance and estimates (including their underlying assumptions), statements regarding plans, objectives, expectations or consequences of various transactions, and statements about the future performance, operations, products and services of the Company and its subsidiaries. We caution our stockholders and other readers not to place undue reliance on such statements.

You should read this prospectus and the documents incorporated by reference completely and with the understanding that our actual future results may be materially different from what we currently expect. Our business and operations are and will be subject to a variety of risks, uncertainties and other factors. Consequently, actual results and experience may materially differ from those contained in any forward-looking statements. Such risks, uncertainties and other factors that could cause actual results and experience to differ from those projected include, but are not limited to, the risk factors set forth in Part I - Item 1A, “Risk Factors”, in our Annual Report on Form 10-K for the year ended December 31, 2014, as filed with the SEC on April 15, 2015, and elsewhere in the documents incorporated by reference into this prospectus.

You should assume that the information appearing in this prospectus, any accompanying prospectus supplement, any related free writing prospectus and any document incorporated herein by reference is accurate as of its date only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. All written or oral forward-looking statements attributable to us or any person acting on our behalf made after the date of this prospectus are expressly qualified in their entirety by the risk factors and cautionary statements contained in and incorporated by reference into this prospectus. Unless legally required, we do not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

USE OF PROCEEDS

We will receive no proceeds from the sale of the Securities by the Selling Stockholders.

The Selling Stockholders will pay any underwriting discounts and commissions and any similar expenses they incur in disposing of the Securities. We will bear all other costs, fees and expenses incurred in effecting the registration of the Securities covered by this prospectus. These may include, without limitation, all registration and filing fees, printing fees and fees and expenses of our counsel and accountants.

SELLING STOCKHOLDERS

We have prepared this prospectus to allow the Selling Stockholders or their successors, assignees or other permitted transferees to sell or otherwise dispose of, from time to time, up to 1,111,952 shares of our Common Stock. The 1,111,952 shares of Common Stock are comprised of: (i) 580,346 shares of Common Stock that were previously issued by us upon conversion of certain of the Private Placement Notes, (ii) up to 488,565 shares of Common Stock that may be issued upon conversion of the outstanding Private Placement Notes, assuming full conversion of the Private Placement Notes at the Maturity Date, and (iii) up to 43,041 shares of Common Stock that may be issued upon conversion of the Placement Agent Note, assuming full conversion of the Placement Agent Note at the Maturity Date. The Notes were issued by us in December 2014 and January 2015 in the Private Placement pursuant to the Note Purchase Agreement. The Notes were issued in reliance on the exemption from securities registration in Section 4(a)(2) under the Securities Act of 1933, as amended, or the Securities Act, and Rule 506 promulgated thereunder.

The shares of Common Stock to be offered by the Selling Stockholders are “restricted” securities under applicable federal and state securities laws and are being registered under the Securities Act to give the Selling Stockholders the opportunity to sell these shares publicly. The registration of these shares does not require that any of the shares be offered or sold by the Selling Stockholders. Subject to these resale restrictions, the Selling Stockholders may from time to time offer and sell all or a portion of their shares indicated below in privately negotiated transactions or on the NASDAQ Capital Market or any other market on which our Common Stock may subsequently be listed.

The registered shares may be sold directly or through brokers or dealers, or in a distribution by one or more underwriters on a firm commitment or best effort basis. To the extent required, the names of any agent or broker-dealer and applicable commissions or discounts and any other required information with respect to any particular offering will be set forth in a prospectus supplement. See the section of this prospectus entitled “Plan of Distribution”. The Selling Stockholders and any agents or broker-dealers that participate with the Selling Stockholders in the distribution of registered shares may be deemed to be “underwriters” within the meaning of the Securities Act, and any commissions received by them and any profit on the resale of the registered shares may be deemed to be underwriting commissions or discounts under the Securities Act.

No estimate can be given as to the amount or percentage of Common Stock that will be held by the Selling Stockholders after any sales made pursuant to this prospectus because the Selling Stockholders are not required to sell any of the Securities being registered under this prospectus. The following table assumes that the Selling Stockholders will sell all of the Securities listed in this prospectus. The outstanding principal and unpaid interest accrued under each outstanding Note is convertible into shares of Common Stock in accordance with the Note Conversion Rate. However, the Note Shares may not be issued at a price less than $1.20 per share of Common Stock. Therefore, in the event that all of the outstanding Notes are held until the Maturity Date, the maximum aggregate number of shares of Common Stock that may be issued upon conversion of the outstanding Notes is 531,606. If any or all of the remaining outstanding Notes are converted prior to the Maturity Date, the number of shares of Common Stock that will actually be issued by us upon conversion of such Notes will be less than the number of Note Shares

being offered by this prospectus.

No Selling Stockholder has had any material relationship with us or any of our affiliates within the past three years other than as a security holder.

We have prepared this table based on written representations and information furnished to us by or on behalf of the Selling Stockholders. Since the date on which the Selling Stockholders provided this information, the Selling Stockholders may have sold, transferred or otherwise disposed of all or a portion of the shares of Common Stock in a transaction exempt from the registration requirements of the Securities Act. Unless otherwise indicated in the footnotes below, we believe that: (1) none of the Selling Stockholders are broker-dealers or affiliates of broker-dealers, (2) no Selling Stockholder has direct or indirect agreements or understandings with any person to distribute their Securities, and (3) the Selling Stockholders have sole voting and investment power with respect to all Securities beneficially owned, subject to applicable community property laws. To the extent any Selling Stockholder identified below is, or is affiliated with, a broker-dealer, it could be deemed to be, under SEC Staff interpretations, an "underwriter" within the meaning of the Securities Act. Information about the Selling Stockholders may change over time. Any changed information will be set forth in supplements to this prospectus, if required.

The following table sets forth information with respect to the beneficial ownership of our Common Stock held, as of January 8, 2016, by the Selling Stockholders and the number of Securities being offered hereby and information with respect to shares to be beneficially owned by the Selling Stockholders after completion of this offering. The percentages in the following table reflect the shares beneficially owned by the Selling Stockholders as a percentage of the total number of shares of Common Stock outstanding as of January 8, 2016. As of such date, 20,695,870 shares of Common Stock were outstanding.

Name	Shares Beneficially Owned Prior to the Offering[1] Number		Percentage		Maximum Number of Shares of Common Stock to be Offered Pursuant to this Prospectus Number	Shares Beneficially Owned After the Offering[2] Number	Percentage	
Dolphin Offshore Partners, L.P.	1,015,844	(3)	4.9	%	502,786	513,058	2.5	%
MAZ Partners LP	123,325	(4)	*	%	116,325	7,000	*	%
FireRock Capital Inc.	34,379	(5)	*	%	34,379	—	—	
David J. Wambeke	201,615	(6)	1.0	%	93,060	108,555	*	%
William F. Hartfiel, III	138,564	(7)	*	%	43,181	95,383	*	%
Potomac Capital Partners, L.P.	347,642	(8)	1.7	%	279,180	68,462	*	%
Craig-Hallum Capital Group LLC	365,792	(9)	1.7	%	43,041	322,751	1.5	%
TOTAL	2,227,161		—		1,111,952	1,115,209	—	

*Denotes less than one percent.

(1) Beneficial ownership is determined in accordance with Rule 13d-3 under the Exchange Act. In computing the number of shares beneficially owned by a person and the percentage ownership of that person, shares of common stock subject to warrants, options and other convertible securities held by that person that are currently exercisable or exercisable within 60 days (of January 8, 2016) are deemed outstanding. Shares subject to warrants, options and other convertible securities, however, are not deemed outstanding for the purpose of computing the percentage ownership of any other person.

(2) Assumes that the Selling Stockholders dispose of all of the shares of Common Stock covered by this prospectus and do not acquire beneficial ownership of any additional shares. The registration of these shares does not necessarily mean that the Selling Stockholders will sell all or any portion of the shares covered by this prospectus. Additionally, if any or all of the outstanding Notes are converted prior to the Maturity Date, the number of shares of Common Stock that will actually be issued upon conversion of such Notes will be less than the number of Note Shares being offered by this prospectus.

(3) The number of shares consists of (i) 861,998 shares of Common Stock, 502,786 of which were issued upon conversion of the Note held by Dolphin Offshore Partners, L.P. with an aggregate principal amount of $750,000 and which are covered by this prospectus, and (ii) 153,846 shares of Common Stock issuable upon exercise of warrants that are currently exercisable. Dolphin Mgmt. Services, Inc. is the Managing General Partner of Dolphin Offshore Partners, L.P. Peter E. Salas is the President and controlling person of Dolphin Mgmt. Services, Inc. Therefore, Mr. Salas has voting and dispositive power over the shares beneficially owned by Dolphin Offshore Partners, L.P.

(4) The number of shares consists of (i) 7,000 shares of Common Stock issuable upon exercise of warrants that are currently exercisable, and (iii) 116,325 shares of Common Stock that may be issued upon conversion of the Note held by MAZ Partners LP with an aggregate principal amount of $125,000, which are covered by this prospectus. Walter Schenker, principal, has voting and dispositive power over the shares beneficially owned by MAZ Partners LP.

(5) Consists of 34,379 shares of Common Stock that were issued upon conversion of the Note held by FireRock Capital Inc. with an aggregate principal amount of $50,000 and which are covered by this prospectus. Neil Rock

and Seth Fireman have voting and dispositive power over the shares beneficially owned by FireRock Capital Inc.

(6) The number of shares consists of (i) 77,770 shares of Common Stock, (ii) 15,385 shares of Common Stock issuable upon exercise of warrants that are currently exercisable, (iii) 15,400 shares of Common Stock issuable upon exercise of Series A Warrants, and (iv) 93,060 shares of Common Stock that may be issued upon conversion of the Note held by David J. Wambeke with an aggregate principal amount of $100,000, which are covered by this prospectus. The Selling Stockholder indicated that he may be deemed to be an affiliate of Craig-Hallum Capital Group LLC, a registered broker-dealer. The Selling Stockholder represented that he acquired the Note and the Note Shares in the ordinary course of business and, at the time of the acquisition of the Note and the Note Shares, had no agreements or understandings, directly or indirectly, with any person to distribute the Note and the Note Shares.

(7) The number of shares consists of (i) 98,951 shares of Common Stock, 43,181 of which were issued upon conversion of the Note held by Mr. Hartfiel with an aggregate principal amount of $50,000 and which are covered by this prospectus, and (ii) 39,613 shares of Common Stock issuable upon exercise of warrants that are currently exercisable. The Selling Stockholder indicated that he may be deemed to be an affiliate of Craig-Hallum Capital Group LLC, a registered broker-dealer. The Selling Stockholder represented that he acquired the Note and the Note Shares in the ordinary course of business and, at the time of the acquisition of the Note and the Note Shares, had no agreements or understandings, directly or indirectly, with any person to distribute the Note and the Note Shares.

(8) The number of shares consists of (i) 10,000 shares of Common Stock, (ii) 58,462 shares of Common Stock issuable upon exercise of warrants that are currently exercisable, and (iii) 279,180 shares of Common Stock that may be issued upon conversion of the Note held by Potomac Capital Partners, L.P. with an aggregate principal amount of $300,000, which are covered by this prospectus. Potomac Capital Management, L.L.C. is the General Partner of Potomac Capital Partners, L.P. Paul J. Solit is the Managing Member of Potomac Capital Management, L.L.C. and therefore may be deemed to have voting and dispositive power over the shares beneficially owned by Potomac Capital Partners, L.P.

(9) The number of shares consists of (i) 322,751 shares of Common Stock issuable upon exercise of warrants that are currently exercisable, except for a warrant to purchase 107,527 shares of Common Stock, which will become exercisable on July 8, 2016, and (ii) 43,041 shares of Common Stock that may be issued upon conversion of the Note held by Craig-Hallum Capital Group LLC ("Craig-Hallum") with an aggregate principal amount of $46,250, which are covered by this prospectus. Craig-Hallum acted as the sole placement agent in the Private Placement and we issued to Craig-Hallum the Note in an aggregate principal amount equal to 5% of the proceeds received by us in the Private Placement, or $46,250. Craig-Hallum is a registered broker-dealer. Craig-Hallum received the Securities as compensation for investment banking services, represented that it acquired the Securities in the ordinary course of business and, at the time of the acquisition of the Securities, had no agreements or understandings, directly or indirectly, with any person to distribute the Securities. Kevin Harris, the President of Craig-Hallum, and Bradley Baker, the Chief Executive Officer of Craig-Hallum, share voting and dispositive power over the shares beneficially owned by Craig-Hallum.

Indemnification

Under the Note Purchase Agreement, we have agreed to indemnify the Selling Stockholders and each underwriter of the Securities against certain losses, claims, damages, liabilities, settlement costs and expenses, including liabilities under the Securities Act.

PLAN OF DISTRIBUTION

The Selling Stockholders and any of their pledges, assignees, donees selling shares received from such Selling Stockholders as a gift, and successors-in-interest may, from time to time, sell any or all of their shares of Common Stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These sales may be at fixed or negotiated prices. The Selling Stockholders may use any one or more of the following methods when selling shares:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended, if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The Selling Stockholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The Selling Stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act.

We are required to pay all fees and expenses incident to the registration of the shares, including certain fees and disbursements of counsel to the Selling Stockholders; *provided*, *however*, that a Selling Stockholder will pay all underwriting discounts and selling commissions, if any. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act. We may be indemnified by the Selling Stockholders against civil liabilities, including liabilities under the Securities Act, that may arise from any written information furnished to us by the Selling Stockholder specifically for use in this prospectus, in accordance with the Note Purchase Agreement, or we may be entitled to contribution.

To the extent required, we will amend or supplement this prospectus to disclose material arrangements regarding the plan of distribution.

To comply with the securities laws of certain jurisdictions, registered or licensed brokers or dealers may need to offer or sell the shares offered by this prospectus. The applicable rules and regulations under the Securities Exchange Act of 1934, as amended, may limit any person engaged in a distribution of the shares of common stock covered by this prospectus in its ability to engage in market activities with respect to such shares. A Selling Stockholder, for example, will be subject to applicable provisions of the Exchange Act and the rules and regulations under it, including, without limitation, Regulation M of the Exchange Act, which provisions may limit the timing of purchases and sales of any shares of common stock by that Selling Stockholder. 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 shares of common stock. All of the foregoing may affect the marketability of the shares of common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of common stock.

DESCRIPTION OF CAPITAL STOCK

General Matters

Under our Third Amended and Restated Certificate of Incorporation, as amended from time to time, or the Certificate of Incorporation, we are authorized to issue up to 150,000,000 shares of Common Stock, from time to time, as provided in a resolution or resolutions adopted by our Board of Directors.

Common Stock

As of January 8, 2016, 20,695,870 shares of Common Stock were issued and outstanding, held by approximately 77 stockholders of record, not including beneficial holders whose shares are held in names other than their own.

Dividends, Voting Rights and Liquidation

Holders of Common Stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders and do not have cumulative voting rights. Holders of Common Stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available for dividend payments. All outstanding shares of Common Stock are fully paid and non-assessable. The holders of Common Stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to the Common Stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of Common Stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations. The rights, preferences and privileges of the Common Stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock currently outstanding or which we may designate and issue in the future.

Preferred Stock

General Matters

Under the Certificate of Incorporation, we have the authority to issue up to 15,000,000 shares of preferred stock, $0.01 par value per share, or the Preferred Stock, issuable in specified series and having specified voting, dividend, conversion, liquidation and other rights and preferences as our Board of Directors may determine, subject to limitations set forth in the Certificate of Incorporation. The Preferred Stock may be issued for any lawful corporate purpose without further action by our stockholders. The issuance of any Preferred Stock having conversion rights might have the effect of diluting the interests of our other stockholders. In addition, shares of Preferred Stock could be issued with rights, privileges and preferences which would deter a tender or exchange offer or discourage the acquisition of control of the Company.

Of the number of shares of Preferred Stock authorized by our Certificate of Incorporation, as of January 8, 2016 (i) 3,879,307 shares had been designated Series A Convertible Preferred Stock with such rights, privileges and preferences as set forth in the Certificate of Amendment of Certificate of Designation of Series A Convertible Preferred Stock filed with the Secretary of State of the State of Delaware on March 5, 2014, (ii) 1,443,297 shares had been designated Series B Convertible Preferred Stock with such rights, privileges and preferences as set forth in the Certificate of Designation of Series B Convertible Preferred Stock filed with the Secretary of State of the State of Delaware on March 5, 2014, and (iii) 2,365,243 shares had been designated Series A-1 Preferred with such rights, privileges and preferences as set forth in the Certificate of Designation of Series A-1 Convertible Preferred Stock filed with the Secretary of State of the State of Delaware on January 8, 2016. As of January 8, 2016, no shares of the Series A Convertible Preferred Stock or the Series B Convertible Preferred Stock were outstanding and 2,365,243 shares of Series A-1 Preferred were issued and outstanding.

Dividends, Voting Rights and Liquidation

Certain rights of the holders of the Series A-1 Preferred are senior to the rights of the holders of our Common Stock. The Series A-1 Preferred has a liquidation preference equal to its original price per share, plus any accrued and unpaid dividends thereon.

All outstanding shares of Series A-1 Preferred will be automatically converted into Common Stock, at an initial conversion rate of 1:1, at the election of the holders of a majority of the then-outstanding shares of Series A-1 Preferred, voting as a single class on an as-converted basis. The initial conversion rate for the Series A-1 Preferred is subject to adjustment in the event of certain stock splits, stock dividends, mergers, reorganizations and reclassifications.

Generally, the holders of the Series A-1 Preferred are entitled to vote as a single voting group with the holders of the Common Stock, and the holders of the Series A-1 Preferred are generally entitled to that number of votes as is equal to the product obtained by multiplying: (i) the number of whole shares of Common Stock into which the Series A-1 Preferred may be converted as of the record date of such vote or consent, by (ii) 0.93, rounded down to the nearest whole number. Initially, every 1.075269 shares of Series A-1 Preferred will generally be entitled to one vote.

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Anti-Takeover Effects Under Section 203 of the General Corporation Law of the State of Delaware

We are subject to Section 203 of the General Corporation Law of the State of Delaware, or the DGCL, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or an exchange offer; or

- on or after such date, the business combination is approved by the board of directors and authorized at an annual or a special meeting of the stockholders, and not by written consent, by the affirmative vote of at least $66^2/3\%$ of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 of the DGCL defines "business combination" to include the following:

- any merger or consolidation involving the corporation or any direct or indirect majority owned subsidiary of the corporation and the interested stockholder or any other corporation, partnership, unincorporated association, or other entity if the merger or consolidation is caused by the interested stockholder and as a result of such merger or consolidation the transaction is not excepted as described above;

- any sale, transfer, pledge, or other disposition (in one transaction or a series) of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

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any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or

the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges, or other financial benefits by or through the corporation.

In general, Section 203 of the DGCL defines an "interested stockholder" as an entity or a person who, together with the person's affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Anti-Takeover Effects Under Certain Provisions of our Certificate of Incorporation and Bylaws

Our Certificate of Incorporation and our Amended and Restated Bylaws, or the Bylaws, include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of the management of the Company.

First, our Certificate of Incorporation provides that all stockholder actions must be effected at a duly called meeting of holders and not by a consent in writing.

Second, our Bylaws provide that special meetings of the holders may be called only by the chairman of the Board of Directors, the Chief Executive Officer or our Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors.

Third, our Certificate of Incorporation provides that our Board of Directors can issue up to 15,000,000 shares of Preferred Stock without further action by our stockholders, as described under "—Preferred Stock" above.

Fourth, our Certificate of Incorporation and Bylaws provide for a classified Board of Directors in which approximately one-third of the directors are elected each year. Consequently, any potential acquirer would need to successfully complete two proxy contests in order to take control of our Board of Directors. As a result of the provisions of the Certificate of Incorporation and Delaware law, stockholders will not be able to cumulate votes for directors.

Fifth, our Certificate of Incorporation prohibits a business combination with an interested stockholder without the approval of the holders of 75% of all voting shares and the vote of a majority of the voting shares held by disinterested stockholders, unless it has been approved by a majority of the disinterested directors.

Finally, our Bylaws establish procedures, including advance notice procedures, with regard to the nomination of candidates for election as directors and stockholder proposals. These provisions of our Certificate of Incorporation and Bylaws could discourage potential acquisition proposals and could delay or prevent a change in control of the management of our company.

Warrants

As of January 8, 2016, warrants to purchase 8,853,905 shares of Common Stock with a weighted-average exercise price of $3.10 per share were outstanding. Series A Warrants to purchase an aggregate of 15,400 shares of Common Stock, or the Series A Warrants, Series B Warrants to purchase an aggregate of 667,164 shares of Common Stock, or the Series B Warrants, and warrants to purchase 2,935,901 shares of Common Stock, or the Exchangeable Warrants, are subject to a blocker provision, or the Warrant Blocker, which restricts the exercise of the warrants if, as a result of such exercise, the warrant holder, together with its affiliates and any other person whose beneficial ownership of Common Stock would be aggregated with the warrant holder's for purposes of Section 13(d) of the Exchange Act, would beneficially own in excess of 9.99% of our then issued and outstanding shares of Common Stock (including the shares of Common Stock issuable upon such exercise), as such percentage ownership is determined in accordance with the terms of the Series A Warrants and Series B Warrants. The Series A Warrants, the Series B Warrants and the Exchangeable Warrants are currently exercisable, in each case except to the extent such exercise is restricted by the Warrant Blocker. The Warrant Blocker for the Series A Warrants and the Series B Warrants will automatically expire 61 calendar days prior to January 7, 2021, the expiration date of each of the Series A Warrants and Series B Warrants, and the Warrant Blocker for the Exchangeable Warrants will automatically expire 61 calendar days prior to January 8, 2021, the expiration date of the Exchangeable Warrants. The Exchangeable Warrants may be exchanged for shares of Common Stock, subject to certain exceptions and limitations. All of our other outstanding warrants are currently exercisable, except for a warrant to purchase 107,527 shares of common stock, which will become exercisable on July

8, 2016, and an Exchangeable Warrant to purchase 1,161,972 shares of Common Stock, which may not be exercised or exchanged until we obtain stockholder approval or approval from The Nasdaq Stock Market LLC to issue shares of Common Stock upon exercise or exchange. All of our outstanding warrants contain provisions for the adjustment of the exercise price in the event of stock dividends, stock splits, reorganizations, reclassifications or mergers. In addition, certain of the warrants contain a "cashless exercise" feature that allows the holders thereof to exercise the warrants without a cash payment to us under certain circumstances.

Unsecured Convertible Promissory Notes

Pursuant to the terms of the Note Purchase Agreement, we issued and sold, in a private placement, the Private Placement Notes, in the aggregate principal amount of $1,675,000, for which we are registering, pursuant to the registration statement of which this prospectus forms a part, the resale of: (1) all of the shares of Common Stock that were previously issued by us upon conversion of certain of the Private Placement Notes and are still held by the original holders of the Private Placement Notes, and (2) the maximum number of shares of Common Stock that may be issued upon conversion the outstanding Private Placement Notes, assuming full conversion of the Private Placement Notes at the Maturity Date. In accordance with the terms of the Notes, the outstanding principal and unpaid interest accrued under each Note is convertible into shares of Common Stock as follows: (i) commencing upon the date of issuance of the Note (but no earlier than January 1, 2015), the investor holding such Note became entitled to convert, on a one-time basis, up to 50% of the outstanding principal and unpaid interest accrued under the Note, into shares of Common Stock at a conversion price equal to the lesser of (a) the average closing price of the Common Stock on the principal securities exchange or securities market on which the Common Stock is then traded, or the Market, for the 20 consecutive trading days immediately preceding the date of conversion, and (b) $2.20 (subject to adjustment for stock splits, stock dividends, other distributions, recapitalizations and the like); and (ii) commencing February 15, 2015, the investor holding such Note became entitled to convert, on a one-time basis, any or all of the remaining outstanding principal and unpaid interest accrued under the Note, into shares of Common Stock at a conversion price equal to 85% of the average closing price of the Common Stock on the Market for the 15 consecutive trading days immediately preceding the date of conversion. As of the date of this prospectus, Private Placement Notes in an aggregate principal amount of $1,150,000 have been converted into 783,809 shares of Common Stock, of which 580,346 shares are being registered pursuant to the registration statement of which this prospectus forms a part, and Private Placement Notes in an aggregate principal amount of $525,000 remain outstanding.

Craig-Hallum acted as the sole placement agent for the second closing of the Private Placement. In connection with the second closing of the Private Placement, we issued to Craig-Hallum the Placement Agent Note, upon the same terms and conditions as the Private Placement Notes, in an aggregate principal amount equal to 5% of the proceeds received by us pursuant to the second closing of the Private Placement, or $46,250. As of the date of this prospectus, the Placement Agent Note remains outstanding. The resale of the shares of Common Stock issuable upon conversion of the Placement Agent Note are being registered pursuant to the registration statement of which this prospectus forms a part.

Pursuant to the terms of the Note Purchase Agreement, we are obligated to use our best efforts to file with the SEC by January 31, 2016 a registration statement to register for resale all of the shares of Common Stock issued on or prior to November 30, 2015 pursuant to the conversion of any portion of the Notes, or the Initial Registration Statement, and to use our commercially reasonable efforts to have the Initial Registration Statement declared effective by the SEC by March 31, 2016. In addition, we are obligated to use our best efforts to file with the SEC by January 31, 2017 an additional registration statement to register for resale all of the shares of Common Stock issued pursuant to the conversion of any portion of the Notes that have not previously been registered for resale, or the Additional Registration Statement, and to use our commercially reasonable efforts to have the Additional Registration Statement declared effective by the SEC by March 31, 2017. Under the Note Purchase Agreement, we may be required to effect one or more other registrations to register for resale the shares of Common Stock issued or issuable under the Notes in connection with certain “piggy-back” registration rights granted to the investors in the private placement. Pursuant to the registration statement of which this prospectus forms a part, we are registering: (a) all of the shares of Common Stock that were previously issued by us upon conversion of certain of the Notes and are still held by the original holders of the Notes, and (b) the maximum number of shares of Common Stock that may be issued upon conversion of the outstanding Notes, assuming full conversion of the Notes at the Maturity Date.

We sold the Private Placement Notes to “accredited investors”, as that term is defined in the Securities Act and in reliance on the exemption from registration afforded by Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated under the Securities Act and corresponding provisions of state securities or “blue sky” laws. Accordingly, the Notes and the Securities have not been registered under the Securities Act and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the Securities Act and any applicable state securities laws.

Listing

Our common stock is listed on the NASDAQ Capital Market under the symbol “TBIO”.

Transfer Agent and Registrar

The transfer agent and registrar for our Common Stock is Wells Fargo Shareowner Services. Its address is 1110 Centre Pointe Curve, Suite 101, Mendota Heights, MN 55120 and its telephone number is 1-855-217-6361.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, the validity of the Common Stock offered by this prospectus, and any supplement thereto, will be passed upon for us by Paul Hastings LLP, Palo Alto, California.

EXPERTS

The consolidated balance sheets of Transgenomic, Inc. and Subsidiary as of December 31, 2014 and 2013, and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2014 appearing in Transgenomic, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2014, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph that raises substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements), included therein, and incorporated herein by reference. Such financial statements are incorporated herein in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The audited consolidated financial statements of Transgenomic, Inc. and subsidiary for the year ended December 31, 2012 included in Transgenomic, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2014 have been audited by RSM US LLP, independent registered public accounting firm, as set forth in their report dated March 14, 2013, which is incorporated by reference herein. Such financial statements are incorporated herein in reliance upon the report of RSM US LLP pertaining to such financial statements given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the Common Stock being offered under this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the shares of Common Stock being offered under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. You may read and copy the registration statement, as well as our reports, proxy statements and other information, 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 more information about the operation of the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including

Transgenomic, Inc. The SEC's Internet site can be found at *http://www.sec.gov*.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and persons controlling us pursuant to the provisions described in Item 15 of the registration statement of which this prospectus is a part or otherwise, we have been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable. In the event that a claim for indemnification against such liabilities (other than our payment of expenses incurred or paid by our directors, officers, or controlling persons in the successful defense of any action, suit, or proceeding) is asserted by our directors, officers, or controlling persons in connection with the common stock being registered, we will, unless in the opinion of our 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 Securities Act and will be governed by the final adjudication of the issue.

IMPORTANT INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The documents incorporated by reference into this prospectus contain important information that you should read about us.

The following documents are incorporated by reference into this prospectus:

(a) The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2014, filed with the SEC on April 15, 2015, as amended pursuant to that Amendment No. 1 filed with the SEC on August 14, 2015 and Amendment No. 2 filed with the SEC on August 21, 2015;

(b) The Registrant's Definitive Proxy Statement on Schedule 14A filed with the SEC on April 30, 2015;

(c) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2015, filed with the SEC on May 14, 2015;

(d) The Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2015, filed with the SEC on August 14, 2015;

(e) The Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015, filed with the SEC on November 16, 2015;

(f) The Registrant's Current Reports on Form 8-K filed with the SEC on (i) January 7, 2015, (ii) January 14, 2015, (iii) January 20, 2015, (iv) February 19, 2015, (v) February 27, 2015, (vi) April 2, 2015, (vii) June 3, 2015, (viii) June 9, 2015, (ix) June 22, 2015, (x) July 1, 2015, (xi) September 9, 2015, (xii) September 17, 2015, (xiii) September 30, 2015, (xiv) December 1, 2015, (xv) January 11, 2016, filed at 7:30 a.m. Eastern Time, (xvi) January 11, 2016, filed at 7:33 a.m. Eastern Time, and (xvii) January 20, 2016;

(g) The Registrant's Current Report on Form 8-K/A filed with the SEC on July 7, 2015; and

(h) The description of the Registrant's common stock set forth in the Registrant's Registration Statement on Form 8-A (File No. 001-36439), filed with the SEC on May 5, 2014, including any amendments or reports filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the Common Stock made by this prospectus and will become a part of this prospectus from the respective dates that such documents are filed with the SEC. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes hereof or of the related prospectus supplement to the extent that a statement contained herein or in any other subsequently filed document which is also incorporated or deemed to be incorporated 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 prospectus.

Documents incorporated by reference are available from us, without charge. You may obtain documents incorporated by reference in this prospectus by requesting them in writing or by telephone at the following address:

Transgenomic, Inc.

Attn: Investor Relations

12325 Emmet Street

Omaha, NE 68164

Phone: (402) 452-5400

Fax: (402) 452-5461

E-mail: investorrelations@transgenomic.com

TRANSGENOMIC, INC.

1,111,952 SHARES OF COMMON STOCK

PROSPECTUS

February 8, 2016

Neither we nor the Selling Stockholders have authorized any dealer, salesperson or other person to give any information or to make any representations not contained in this prospectus or any prospectus supplement. You must not rely on any unauthorized information. This prospectus is not an offer to sell these securities in any jurisdiction where an offer or sale is not permitted. The information in this prospectus is current as of the date of this prospectus. You should not assume that this prospectus is accurate as of any other date.