

TRANSGENOMIC INC

Form 424B5

February 26, 2015

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not offers to sell these securities and are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(5)

Registration No. 333-201907

Subject to Completion
Preliminary Prospectus Supplement dated February
26, 2015

PROSPECTUS SUPPLEMENT
(To Prospectus dated February 13, 2015)

Shares of Common Stock

Warrants to Purchase Shares of Common Stock

TRANSGENOMIC, INC.

We are offering shares of our common stock and corresponding warrants to purchase up to shares of common stock (and the shares of common stock that are issuable from time to time upon the exercise of the warrants). The common stock and corresponding warrants will be sold in combination, with one warrant to purchase of a share of common stock for each share of common stock sold. The combined purchase price for each share of common stock and corresponding warrant is \$.

The corresponding warrants can be exercised during the period commencing on the date of issuance and ending on . The exercise price for the corresponding warrants initially will be \$ per share, and will be subject to adjustments as described herein.

Based on 7,505,190 shares of our common stock held by non-affiliates on February 26, 2015 and a per share price of \$3.90, the closing price of our common stock on the NASDAQ Capital Market on January 29, 2015, the aggregate amount under our outstanding common stock held by non-affiliates was \$29,270,241.

Our shares trade on the NASDAQ Capital Market under the symbol TBIO. On February 25, 2015, the last sale price of our shares of common stock as reported on the NASDAQ Capital Market was \$2.17 per share. There is no established public trading market for the corresponding warrants and we do not expect a market to develop. In addition, we do not intend to apply for listing of the corresponding warrants on any national securities exchange or

other nationally recognized trading system.

Investing in our common stock and corresponding warrant involves risks, including those described in the Risk Factors section beginning on page S-7 of this prospectus supplement and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2013, which is incorporated herein by reference.

	Per Share and Corresponding Warrant	Total
Public offering price	\$	\$
Underwriting discounts and commissions ⁽¹⁾	\$	\$
Proceeds, before expenses, to us	\$	\$

In addition to the underwriting discount, we have agreed to pay up to \$85,000 of the fees and expenses of the (1) underwriter in connection with this offering. See Underwriting for additional information regarding underwriting compensation.

The above summary of offering proceeds to us does not give effect to any exercise of the corresponding warrants being issued in this offering.

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

Craig-Hallum Capital Group

**The date of this prospectus supplement is _____ ,
2015**

TABLE OF CONTENTS

TABLE OF CONTENTS

Prospectus Supplement

	Page
<u>About This Prospectus Supplement</u>	<u>S-1</u>
<u>Prospectus Supplement Summary</u>	<u>S-3</u>
<u>The Offering</u>	<u>S-5</u>
<u>Risk Factors</u>	<u>S-7</u>
<u>Disclosure Regarding Forward-Looking Statements</u>	<u>S-9</u>
<u>Use of Proceeds</u>	<u>S-10</u>
<u>Price Range of Common Stock</u>	<u>S-11</u>
<u>Dividend Policy</u>	<u>S-12</u>
<u>Dilution</u>	<u>S-13</u>
<u>Description of Warrants</u>	<u>S-15</u>
<u>Certain Material U.S. Federal Income Tax Considerations for Non-U.S. Holders</u>	<u>S-16</u>
<u>Underwriting</u>	<u>S-20</u>
<u>Legal Matters</u>	<u>S-23</u>
<u>Experts</u>	<u>S-23</u>
<u>Where You Can Find More Information</u>	<u>S-23</u>
<u>Information Incorporated by Reference</u>	<u>S-24</u>

Prospectus

<u>About This Prospectus</u>	<u>1</u>
<u>Prospectus Summary</u>	<u>2</u>
<u>Risk Factors</u>	<u>3</u>
<u>Disclosure Regarding Forward-Looking Statements</u>	<u>4</u>
<u>Use of Proceeds</u>	<u>5</u>
<u>Ratio of Earnings to Fixed Charges and Preferred Share Dividends</u>	<u>6</u>
<u>Description of Capital Stock</u>	<u>7</u>
<u>Description of Debt Securities</u>	<u>12</u>
<u>Description of Warrants</u>	<u>20</u>
<u>Description of Units</u>	<u>23</u>
<u>Legal Ownership of Securities</u>	<u>24</u>
<u>Plan of Distribution</u>	<u>27</u>
<u>Legal Matters</u>	<u>29</u>
<u>Experts</u>	<u>29</u>
<u>Where You Can Find More Information</u>	<u>29</u>
<u>Important Information Incorporated by Reference</u>	<u>30</u>

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the Securities Exchange Commission (the SEC), utilizing a shelf registration process. This document is in two parts. The first part is the prospectus supplement, including the documents incorporated by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under **Where You Can Find More Information** and **Information Incorporated by Reference**.

These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference.

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference therein and any free writing prospectus we provide you. We have not, and the underwriter has not, authorized anyone to provide you with different information.

If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriter is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus and any free writing prospectus we provide you is accurate only as of the date on those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, when making your investment decision. You should also read and consider the information in the documents we have referred you to in the sections of this prospectus supplement entitled **Where You Can Find More Information** and **Information Incorporated by Reference**. The distribution of this prospectus supplement and the offering of the common stock and corresponding warrants in certain jurisdictions may be restricted by law. Persons outside the United States (U.S.) who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the common stock and corresponding warrants and the distribution of this prospectus supplement outside the U.S. This prospectus supplement does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless otherwise indicated, information contained in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference, concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry's future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in **Risk Factors** in this

prospectus supplement, the accompanying prospectus and in our Annual Report on Form 10-K for the fiscal year ended December 31, 2013 and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2014, which are incorporated by reference into this prospectus supplement. These and other important factors could cause our future performance to differ materially from our assumptions and estimates. See Disclosure Regarding Forward-Looking Statements.

S-1

TABLE OF CONTENTS

General information about us can be found on our website at www.transgenomic.com. The information on our website is for informational purposes only and should not be relied on for investment purposes. The information on our website is not incorporated by reference into either this prospectus supplement or the accompanying prospectus and should not be considered part of this or any other report filed with the SEC.

S-2

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus supplement. This summary does not contain all the information that you should consider before investing in our common stock and corresponding warrants. Before making an investment decision, to fully understand this offering and its consequences to you, you should carefully read this entire prospectus supplement and the accompanying prospectus, including the Risk Factors of this prospectus supplement, the financial statements and related notes, and the other information that we incorporate by reference into this prospectus supplement, including the section Risk Factors in our Annual Report on Form 10-K for the fiscal year ended December 31, 2013 and our Quarterly Report on Form 10-Q for the quarter ended September 30, 2014. This prospectus supplement contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from the results anticipated in these forward-looking statements as a result of factors described under the Risk Factors section and elsewhere in this prospectus supplement. Unless the context otherwise requires, any reference to Transgenomic, the Company, we, our and us in this prospectus supplement refers to Transgenomic, Inc. and its subsidiaries.

Transgenomic, Inc.

We are a global biotechnology company advancing personalized medicine in the detection and treatment of cancer and inherited diseases through our proprietary molecular technologies and clinical and research services. We have two complementary business segments:

Laboratory Services. Our laboratories specialize in genetic testing for cardiology, neurology, mitochondrial disorders and oncology. Our Patient Testing laboratories located in New Haven, Connecticut and Omaha, Nebraska are certified under the Clinical Laboratory Improvement Amendment as high complexity labs and our Omaha facility is also accredited by the College of American Pathologists. Our Biomarker Identification laboratory located in Omaha, Nebraska also provides pharmacogenomics research services supporting Phase II and Phase III clinical trials conducted by pharmaceutical companies. Our laboratories employ a variety of genomic testing service technologies, including ICE COLD-PCR technology. ICE COLD-PCR is a proprietary platform technology that can be run in any laboratory with standard PCR technology and that enables detection of multiple unknown mutations from virtually any sample type, including tissue biopsies, blood, cell-free DNA and circulating tumor cells at levels greater than 1,000-fold higher than standard DNA sequencing techniques.

Genetic Assays and Platforms. Our proprietary product is the WAVE® System, which has broad applicability to genetic variation detection in both molecular genetic research and molecular diagnostics. We also distribute bioinstruments produced by other manufacturers, or OEM Equipment, through our sales and distribution network. Service contracts to maintain installed systems are sold and supported by our technical support personnel. The installed WAVE base and some OEM Equipment platforms generate a demand for consumables that are required for the continued operation of the bioinstruments. We develop, manufacture and sell these consumable products. In addition, we manufacture and sell consumable products that can be used on multiple, independent platforms. These products include a range of chromatography columns.

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.

On January 15, 2014, our board of directors (the Board) approved a reverse split of the Company s common stock, par value \$0.01, at a ratio of one for twelve (the Reverse Stock Split). The Reverse Stock Split became effective on January 27, 2014 (the Effective Time). Every 12 shares of common stock issued and outstanding were automatically combined into one share of issued and outstanding common stock, without any change in the par value per share. No fractional shares were issued as a result of the Reverse Stock Split. Stockholders who otherwise would be entitled to receive a fractional share in connection with the Reverse Stock Split received a cash payment in lieu thereof. After giving effect to the Reverse Stock Split, the common stock and outstanding preferred stock have the same proportional voting rights and rights to

S-3

TABLE OF CONTENTS

dividends and distributions and are identical in all other respects to the rights of the common stock and preferred stock as of immediately prior to the Effective Time except for immaterial changes and adjustments resulting from the treatment of fractional shares. Unless otherwise indicated, all share amounts, per share data, share prices, exercise prices and conversion rates set forth in this prospectus supplement have been adjusted retroactively to reflect the Reverse Stock Split.

For a complete description of our business, financial condition, results of operations and other important information, we refer you to our filings with the SEC, that are incorporated by reference in this prospectus, including our Annual Report on Form 10-K for the year ended December 31, 2013. For instructions on how to find copies of these documents, see [Where You Can Find More Information](#) .

S-4

TABLE OF CONTENTS

THE OFFERING

The following is a brief summary of the terms of this offering.

Issuer

Transgenomic, Inc.

Common stock to be offered

shares

Corresponding warrants to be offered

Each share of common stock sold in this offering will be sold with a corresponding warrant to purchase of a share of common stock. The initial exercise price for the corresponding warrants will be \$ per share. See Description of Warrants.

Common stock to be outstanding after the offering

shares (assuming none of the corresponding warrants issued in this offering are exercised)

Use of proceeds

We intend to apply the net proceeds of this offering to working capital and general corporate purposes, which may include, without limitation, supporting asset growth and engaging in acquisitions or other business combinations.

We also may use a portion of the proceeds to repay debt. We reserve the right, at the sole discretion of our Board of Directors, to reallocate the proceeds of this offering in response to developments in our business and other factors.

NASDAQ symbol for common stock

Our common stock is listed on the NASDAQ Capital Market under the symbol TBIO. We do not intend to list the corresponding warrants on The NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Risk factors

See Risk Factors and other information included in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.

The number of shares of common stock to be outstanding after this offering is based on 8,283,179 shares of common stock outstanding as of January 31, 2015 and does not take into account the shares of common stock issuable upon exercise of the corresponding warrants being offered by us in this offering, nor does it consider, as of January 31, 2015:

683,083 shares of our common stock issuable upon exercise of outstanding stock options to purchase shares of our common stock at a weighted average exercise price of \$6.33 per share;

98,333 shares of our common stock issuable upon exercise of outstanding stock appreciation rights with a weighted average exercise price of \$4.14 per share;

810,012 shares of our common stock reserved for issuance under our 2006 Equity Incentive Plan, as amended;

2,586,205 shares of our Series A Convertible Preferred Stock, which is convertible into shares of our common stock at a rate of 1-for-3, subject to certain adjustments;

1,443,297 shares of our Series B Convertible Preferred Stock, which is convertible into shares of our common stock at a rate of 1-for-1, subject to certain adjustments;

S-5

TABLE OF CONTENTS

2,547,935 shares of our common stock issuable in connection with our outstanding warrants with a weighted average exercise price of \$8.61 per share;

1,293,102 shares of Series A Convertible Preferred Stock issuable in connection with our outstanding warrants with a weighted average exercise price of \$2.32 per share, which shares are convertible into shares of our common stock at a rate of 1-for-3, subject to certain adjustments; and

shares of our common stock issuable upon conversion of our unsecured outstanding convertible promissory notes in the aggregate principal amount of \$1,300,000.

Except as otherwise indicated, all information included or incorporated by reference in this prospectus supplement assumes no exercise of the corresponding warrants offered hereby.

S-6

TABLE OF CONTENTS

RISK FACTORS

Investing in any securities offered pursuant to this prospectus and the applicable prospectus supplement 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 Annual Report on Form 10-K for the year ended December 31, 2013, 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 supplement, before deciding whether to purchase any of the securities being offered. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations.

Risks Related to this Offering

A substantial number of shares of common stock may be sold in the market following this offering, which may depress the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are, and the shares of common stock sold in this offering upon issuance will be, freely tradable without restriction or further registration under the Securities Act.

We have broad discretion to determine how to use the funds raised in this offering, and may use them in ways that may not enhance our operating results or the price of our common stock.

Our management will have broad discretion over the use of proceeds from this offering, and we could spend the proceeds from this offering in ways our stockholders may not agree with or that do not yield a favorable return, if at all. We intend to use the net proceeds of this offering for working capital and general corporate purposes, which may include, without limitation, supporting asset growth and engaging in acquisitions or other business combinations. We also may use a portion of the proceeds to repay debt. However, our use of these proceeds may differ substantially from our current plans. If we do not invest or apply the proceeds of this offering in ways that improve our operating results, we may fail to achieve expected financial results, which could cause our stock price to decline.

Purchasers in this offering will experience immediate and substantial dilution in the book value of their investment.

The public offering price of our common stock and corresponding warrants is substantially higher than the net tangible book value per share of our common stock before giving effect to this offering. Accordingly, if you purchase our common stock and corresponding warrants in this offering, you will incur immediate substantial dilution of approximately \$ per share, representing the difference between the public offering price and our as adjusted net tangible book value as of September 30, 2014. Furthermore, if outstanding options, warrants (including those being offered in this offering), stock appreciation rights, or other convertible rights are exercised, you could experience

further dilution. For a further description of the dilution that you will experience immediately after this offering, see the section in this prospectus supplement entitled "Dilution."

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

Federal and state tax laws impose restrictions on the utilization of net operating loss ("NOL") and tax credit carryforwards in the event of an "ownership change" as defined by Section 382 of the Internal Revenue Code of 1986, as amended ("Section 382"). Generally, an ownership change occurs if the percentage of the value of the stock that is owned by one or more direct or indirect "five percent shareholders" increases by more than 50 percentage points over their lowest ownership percentage at any time during the applicable testing period (typically, three years). Under Section 382, if a corporation undergoes an "ownership change," the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes to offset

S-7

TABLE OF CONTENTS

its post-change income may be limited. The Company has not completed a study to assess whether one or more ownership changes has occurred since the Company became a loss corporation as defined in Section 382. Future changes in our stock ownership, which may be outside of our control, may trigger an ownership change. In addition, this or future equity offerings or acquisitions that have equity as a component of the purchase price could result in an ownership change. If an ownership change has occurred or does occur in the future, utilization of the NOL carryforwards or other tax attributes may be limited, which could potentially result in an increased future tax liability to us. In addition, our NOL carryforwards will expire at various times over the next 20 years.

There is no public market for the corresponding warrants to purchase shares of our common stock being offered in this offering.

There is no established public trading market for the corresponding warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the corresponding warrants on any national securities exchange or other nationally recognized trading system, including The NASDAQ Capital Market. Without an active market, the liquidity of the corresponding warrants will be limited.

The corresponding warrants are speculative in nature. You may not be able to recover your investment in the corresponding warrants, and the corresponding warrants may expire worthless.

If our common stock price does not increase to an amount sufficiently above the applicable exercise price of the corresponding warrants during the period the corresponding warrants are exercisable, you will be unable to recover any of your investment in the corresponding warrants. There can be no assurance that the market price of the common stock will ever equal or exceed the exercise price of the corresponding warrants, and consequently, whether it will ever be profitable for holders of the corresponding warrants to exercise the corresponding warrants.

There must be a current prospectus and state registration, or an exemption from applicable registration requirements, in order for you to exercise the warrants.

Purchasers of the common stock and corresponding warrants in this offering will be able to exercise the warrants only if a current prospectus relating to the common stock underlying the warrants is then in effect and we remain eligible to use such prospectus for primary offerings at the time of exercise, or if an exemption from registration and prospectus delivery requirements applies, and only if such securities are qualified for sale or exempt from qualification under the applicable securities laws of the states in which the various holders of warrants reside. We will attempt to maintain the effectiveness of a current prospectus covering the common stock underlying the warrants, but there can be no assurance that we will be able to do so and we may not be able to maintain our eligibility to use such current prospectus. We will be unable to issue common stock to those persons desiring to exercise their warrants if a current prospectus covering the common stock issuable upon the exercise of the warrants is not kept effective or we are unable to use a current prospectus and there is no exemption from such requirements under federal securities laws, or if such shares are neither qualified nor exempt from qualification in the states in which the holders of the warrants reside.

TABLE OF CONTENTS

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference in this prospectus supplement and the accompanying prospectus contain 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), that involve substantial risks and uncertainties. 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. All statements, other than statements of historical facts, included in this prospectus supplement, the accompanying prospectus or any document incorporated by reference in this prospectus supplement and the accompanying prospectus regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects and plans and objectives of management are forward-looking statements. In some cases these statements are identifiable through the use of words such as anticipate, believe, estimate, expect, intend, plan, project, target, can, could, may, should, will, would or the other similar expressions.

These statements are based on management's current views, assumptions or beliefs of future events and financial performance and are subject to uncertainty and changes in circumstances. Readers of this prospectus supplement and the accompanying prospectus should understand that these statements are not guarantees of performance or results and you are cautioned not to place undue reliance on these forward-looking statements. Many factors could affect our actual financial results and cause them to vary materially from the expectations contained in the forward-looking statements. These factors include, among other things: our expected revenue, income (loss), receivables, operating expenses, supplier pricing, availability and prices of raw materials, Medicare/Medicaid/Insurance reimbursements, product pricing, the timing for introduction of new products, foreign currency exchange rates, sources of funding operations and acquisitions, our ability to raise funds, sufficiency of available liquidity, future interest costs, future economic circumstances, business strategy, industry conditions and key trends, our ability to execute our operating plans, the success of our cost savings initiatives, competitive environment and related market conditions, expected financial and other benefits from our organizational restructuring activities, actions of governments and regulatory factors affecting our business and other risks as described in our reports filed with the SEC.

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. 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.

We expressly disclaim any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

S-9

TABLE OF CONTENTS

USE OF PROCEEDS

We expect to receive approximately \$ million from the sale of shares of our common stock and corresponding warrants in this offering, based on the price set forth on the cover page of this prospectus supplement, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. To the extent the warrants issued in this offering are exercised, we may receive additional proceeds.

We currently intend to use the net proceeds from this offering for working capital and general corporate purposes, which may include, without limitation, supporting asset growth and engaging in acquisitions or other business combinations. We also may use a portion of the proceeds to repay debt.

The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. Accordingly, our management will have broad discretion in the timing and application of these proceeds.

Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments. We reserve the right, at the sole discretion of our Board, to reallocate the proceeds of this offering in response to developments in our business and any other factors.

S-10

TABLE OF CONTENTS**PRICE RANGE OF COMMON STOCK**

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

The following table shows the high and low closing sale prices for our common stock as reported by the NASDAQ Capital Market during the periods indicated:

	High	Low
Year Ending December 31, 2015		
First Quarter (through February 25, 2015)	\$ 3.90	\$ 1.61
Year Ending December 31, 2014		
Fourth Quarter	\$ 2.21	\$ 1.98
Third Quarter	\$ 3.82	\$ 3.75
Second Quarter	\$ 3.89	\$ 3.67
First Quarter	\$ 4.80	\$ 4.80
Year Ended December 31, 2013		
Fourth Quarter	\$ 5.52	\$ 4.44
Third Quarter	\$ 4.80	\$ 4.10
Second Quarter	\$ 5.04	\$ 4.20
First Quarter	\$ 4.80	\$ 4.56

The last reported sale price of our common stock on the NASDAQ Capital Market on February 25, 2015 was \$2.17 per share. As of January 31, 2015, there were 82 holders of record of our common stock.

TABLE OF CONTENTS

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. Dividends on our common stock will be paid only if and when declared by our Board. The Board's ability to declare a dividend is subject to limits imposed by Delaware corporate law. Additionally, pursuant to each of the Certificate of Designation of Series A Convertible Preferred Stock, as amended, and the Certificate of Designation of Series B Convertible Preferred Stock, we are prohibited from declaring dividends on our common stock without the prior written consent of the holders of at least two-thirds of the outstanding shares of preferred stock; provided that the Board may declare dividends payable solely in common stock without the prior written consent of the preferred holders. Pursuant to the terms of the Loan Agreement and Security Agreement effective as of March 13, 2013 by and between the Company and affiliates of Third Security, LLC, as amended, our Board also may not pay any dividends without the prior consent of the Lenders; provided that our Board may pay dividends solely in common stock without such consent. In determining whether to declare dividends, the Board may consider our financial condition, results of operations, working capital requirements, future prospects and other relevant factors. The holders of our Series A Convertible Preferred Stock and our Series B Convertible Preferred Stock are entitled to receive quarterly dividends, which accrue at the rate of 10% of the original price per share per annum for the Series A Convertible Preferred Stock and at the rate of 6% of the original price per share per annum for the Series B Convertible Preferred Stock, whether or not declared, and which compound annually and are cumulative.

S-12

TABLE OF CONTENTS

DILUTION

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

Our net tangible book value as of September 30, 2014 was a deficit of \$4,997,000, or (\$0.68) per share of common stock. Our net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of common stock outstanding at September 30, 2014.

After giving effect to the issuance and sale by us of _____ shares of common stock and corresponding warrants in this offering at an offering price of \$ _____ per share and corresponding warrant, after deducting underwriting discounts and commissions and estimated offering expense payable by us and excluding the proceeds, if any, from the exercise of the corresponding warrants issued pursuant to this offering, our as adjusted net tangible book value as of September 30, 2014 would have been approximately \$ _____ million, or approximately \$ _____ per share. This amount represents an immediate increase in as adjusted net tangible book value of \$ _____ per share to our existing stockholders and an immediate dilution in the as adjusted net tangible book value of approximately \$ _____ per share to new investors purchasing shares of common stock and corresponding warrants in this offering at the assumed offering price.

Dilution per share to new investors is determined by subtracting the as adjusted net tangible book value per share after this offering from the public offering price per share paid by new investors. The following table illustrates this dilution on a per share basis:

Assumed Public offering price per share and corresponding warrant	\$
Net tangible book value per share as of September 30, 2014	(\$0.68)
Increase in as adjusted net tangible book value per share attributable to this offering	
As adjusted net tangible book value per share after this offering	
Dilution per share to new investors participating in this offering	\$

Investors that purchase common stock upon the exercise of the corresponding warrants offered hereby may experience dilution depending on our net tangible book value at the time of exercise.

The above discussion and table are based on 7,353,695 shares of common stock outstanding as of September 30, 2014, which does not include, as of September 30, 2014:

- 744,995 shares of our common stock issuable upon exercise of outstanding stock options to purchase shares of our common stock at a weighted average exercise price of \$6.75 per share;
- 138,333 shares of our common stock issuable upon exercise of outstanding stock appreciation rights with a weighted average exercise price of \$4.32 per share;
- 718,144 shares of our common stock reserved for issuance under our 2006 Equity Incentive Plan, as amended;
- 2,586,205 shares of our Series A Convertible Preferred Stock, which is convertible into shares of our common stock at a rate of 1-for-3, subject to certain adjustments;
- 1,443,297 shares of our Series B Convertible Preferred Stock, which is convertible into shares of our common stock at a rate of 1-for-1, subject to certain adjustments;
- 1,904,321 shares of our common stock issuable in connection with our outstanding warrants with a weighted average exercise price of \$10.74 per share;

TABLE OF CONTENTS

1,293,102 shares of Series A Convertible Preferred Stock issuable in connection with our outstanding warrants with a weighted average exercise price of \$2.32 per share, which shares are convertible into shares of our common stock at a rate of 1-for-3, subject to certain adjustments; and

shares of our common stock issuable upon conversion of our unsecured outstanding convertible promissory notes in the aggregate principal amount of \$1,300,000, which notes were issued after September 30, 2014.

To extent any outstanding options, warrants (including those being offered in this offering), stock appreciation rights, convertible promissory notes, or other conversion rights set forth above are exercised, there will be further dilution to new investors.

S-14

TABLE OF CONTENTS

DESCRIPTION OF WARRANTS

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

The corresponding warrants will become exercisable on the date of issuance and will remain exercisable until . Upon the exercise of each corresponding warrant, such holder may purchase of a share of common stock at the exercise price as determined in the corresponding warrant. The corresponding warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise. The exercise price may be paid by a cashless exercise of the warrant. No fractional shares of common stock will be issued in connection with the exercise of a corresponding warrant and the number of shares of common stock to be issued shall be rounded down to the next whole number. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fair market value of the fractional shares.

The initial exercise price for the corresponding warrants will be \$. The exercise price will also be subject to adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock.

In the event of a fundamental transaction, as described in the corresponding warrants and generally, including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the corresponding warrants will be entitled to receive upon exercise of the corresponding warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the corresponding warrants immediately prior to such fundamental transaction.

The corresponding warrants may be modified by the Company upon the written consent of the holder.

There is no public trading market for the corresponding warrants and we do not expect a market to develop. In addition, we do not plan on applying to list the corresponding warrants on The NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Except as otherwise provided in the corresponding warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the corresponding warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their corresponding warrants.

S-15

TABLE OF CONTENTS

CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following is a summary of certain material U.S. federal income tax considerations relating to the purchase, ownership, and disposition of our common stock by a non-U.S. holder (as defined below) as of the date hereof. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, nor does it address any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws, including gift or estate tax, or the Medicare contribution tax on net investment income. This summary is based upon the provisions of the Internal Revenue Code of 1986, as amended (the Code), Treasury regulations promulgated thereunder, administrative rulings and judicial decisions, all as of the date hereof. These authorities may be changed, possibly retroactively, so as to result in U.S. federal income tax consequences different from those set forth below. We have not sought any ruling from the Internal Revenue Service (the IRS) with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS will agree with such statements and conclusions.

For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock that, for U.S. federal income tax purposes, is not any entity taxable as a partnership or any of the following:

- an individual citizen or resident of the U.S.;
- a corporation or other entity taxable as a corporation created or organized in or under the laws of the U.S., any state thereof, or the District of Columbia or otherwise treated as such;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust that (1) is subject to the primary supervision of a U.S. court and the control of one or more U.S. persons or (2) has a valid election in effect under applicable Treasury regulations to be treated as a U.S. person.

This summary is limited to non-U.S. holders who purchase shares of our common stock issued pursuant to this offering and who hold our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment). In addition, this discussion does not address tax considerations applicable to an investor's particular circumstances or to investors that may be subject to special tax rules, including, without limitation:

- banks, insurance companies, or other financial institutions;
 - persons subject to the alternative minimum tax or the net investment income tax;
 - tax-exempt organizations;
 - brokers or dealers in securities or currencies;
 - traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
 - controlled foreign corporations, passive foreign investment companies or corporations that accumulate earnings to avoid U.S. federal income tax;
 - persons that are partnerships or other pass-through entities, or partners or members of such entities;
 - certain former citizens or long-term residents of the U.S.; or
 - persons who hold our common stock as part of a hedge, straddle, constructive sale, or conversion transaction.
- If an entity classified as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. If you are a partnership holding our common stock, or a partner in such partnership, you should consult your tax advisors.

TABLE OF CONTENTS

THIS DISCUSSION IS FOR INFORMATION PURPOSES ONLY AND IS NOT INTENDED AS TAX ADVICE. YOU ARE URGED TO CONSULT YOUR TAX ADVISOR WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO YOUR PARTICULAR SITUATION, AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE FEDERAL ESTATE OR GIFT TAX RULES OR UNDER THE LAWS OF ANY STATE, LOCAL, FOREIGN OR OTHER TAXING JURISDICTION OR UNDER ANY APPLICABLE TAX TREATY.

Distributions on Common Stock

We have never declared or paid any cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. If we were to pay cash dividends in the future on our common stock, they would be subject to U.S. federal income and withholding tax in the manner described below.

If we make cash or other property distributions on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Distributions in excess of our earnings and profits will constitute a return of capital that will first be applied against and reduce the non-U.S. holder's adjusted tax basis in our common stock, and any excess will be treated as capital gain realized on the sale or other disposition of the common stock and will be treated as described under **Gain on Disposition of Common Stock** below.

Distributions paid to a non-U.S. holder of our common stock that constitute dividends under the rules describe above will generally be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with a non-U.S. holder's conduct of a trade or business in the U.S. and, if an income tax treaty applies, are attributable to a permanent establishment in the U.S., are generally exempt from withholding and will be taxed on a net income basis at the same graduated U.S. federal income tax rates applicable to a U.S. person, as defined under the Code. In such cases, we will not have to withhold U.S. federal income tax if the non-U.S. holder complies with applicable certification requirements. In addition, if the non-U.S. holder is a corporation, a branch profits tax equal to 30% (or lower applicable treaty rate) may be imposed on a portion of its effectively connected earnings and profits for the taxable year.

To claim the benefit of a tax treaty or an exemption from withholding because the dividends are effectively connected with the conduct of a trade or business in the U.S., a non-U.S. holder must either (a) provide a properly executed IRS Form W-8BEN or Form W-8ECI (as applicable) before the payment of dividends or (b) if our common stock is held through certain foreign intermediaries, satisfy the relevant certification requirements of applicable U.S. Treasury regulations. These forms may need to be periodically updated. Non-U.S. holders may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders should consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

Gain on Disposition of Common Stock

A non-U.S. holder generally will not be subject to U.S. federal income tax or any withholding thereof with respect to gain recognized on a sale or other disposition of our common stock unless one of the following applies:

the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the U.S. and, if an income tax treaty applies, is attributable to a permanent establishment maintained by the non-U.S. holder in the U.S., in which case, the non-U.S. holder will generally be taxed on its net gain derived from the disposition at the same graduated

U.S. federal income tax rates applicable to a U.S. person and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above may also apply;

S-17

TABLE OF CONTENTS

the non-U.S. holder is an individual who is present in the U.S. for 183 days or more in the taxable year of the disposition and meets certain other requirements, in which case, the non-U.S. holder will be subject to U.S. federal income tax at a rate of 30% (or a reduced rate under an applicable treaty) on the gain derived from the sale, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the U.S.; or subject to certain exceptions, we are or have been a United States real property holding corporation for U.S. federal income tax purposes at any time during the shorter of the 5-year period ending on the date you dispose of our common stock or the period you held our common stock. We believe that we currently are not and do not anticipate becoming a United States real property holding corporation.

Sale or Other Disposition, Exercise or Expiration of Warrants

Upon the sale or other disposition of a corresponding warrant (other than by exercise), a U.S. holder will generally recognize capital gain or loss equal to the difference between the amount realized on the sale or other disposition and the U.S. holder's tax basis in the corresponding warrant. This capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period in such corresponding warrant is more than one year at the time of the sale or other disposition. The deductibility of capital losses is subject to limitations.

In general, a U.S. holder will not be required to recognize income, gain or loss upon exercise of a corresponding warrant for its exercise price. A U.S. holder's basis in a share of common stock received upon exercise will be equal to the sum of (1) the U.S. holder's basis in the corresponding warrant and (2) the exercise price of the corresponding warrant. A U.S. holder's holding period in the shares received upon exercise will commence on the day after such holder exercises the warrants. Although there is no direct legal authority as to the U.S. federal income tax treatment of an exercise of a corresponding warrant on a cashless basis, we intend to take the position that such exercise will not be taxable, either because the exercise is not a gain realization event or because it qualifies as a tax-free recapitalization.

In the former case, the holding period of the common stock should commence on the day after the corresponding warrant is exercised. In the latter case, the holding period of the common stock would include the holding period of the exercised corresponding warrants. However, our position is not binding on the IRS and the IRS may treat a cashless exercise of a corresponding warrant as a taxable exchange. U.S. holders are urged to consult their tax advisors as to the consequences of an exercise of a corresponding warrant on a cashless basis.

If a corresponding warrant expires without being exercised, a U.S. holder will recognize a capital loss in an amount equal to such holder's basis in the warrant. Such loss will be long-term capital loss if, at the time of the expiration, the U.S. holder's holding period in such corresponding warrant is more than one year. The deductibility of capital losses is subject to limitations.

Constructive Dividends on Warrants

As described in the section entitled Dividend Policy, we do not anticipate declaring or paying dividends to holders of our common stock in the foreseeable future. However, if at any time during the period in which a U.S. holder holds corresponding warrants, we were to pay a taxable dividend to our stockholders and, in accordance with the anti-dilution provisions of the corresponding warrants, the exercise price of the corresponding warrants were decreased, that decrease would be deemed to be the payment of a taxable dividend to a U.S. holder of the corresponding warrants to the extent of our earnings and profits, notwithstanding the fact that such holder will not receive a cash payment. If the exercise price is adjusted in certain other circumstances (or in certain circumstances, there is a failure to make adjustments), such adjustments may also result in the deemed payment of a taxable dividend to a U.S. holder. U.S. holders should consult their tax advisors regarding the proper treatment of any adjustments to the corresponding warrants.

Information Reporting and Backup Withholding

We must report annually to the IRS the amount of dividends or other distributions we pay to you on your shares of common stock and the amount of tax we withhold on these distributions (if any) regardless of

S-18

TABLE OF CONTENTS

whether withholding is required. The IRS may make copies of the information returns reporting those distributions and amounts withheld available to the tax authorities in the country in which you reside pursuant to the provisions of an applicable income tax treaty or exchange of information treaty. Backup withholding tax may also apply to payments made to a non-U.S. holder on or with respect to our common stock, unless the non-U.S. holder certifies as to its status as a non-U.S. holder under penalties of perjury or otherwise establishes an exemption, and certain other conditions are satisfied. Notwithstanding the foregoing, backup withholding may apply if either we or our paying agent has actual knowledge, or reason to know, that the holder is a U.S. person that is not an exempt recipient.

Payment of the proceeds of a sale of our common stock within the United States or conducted through certain U.S. related financial intermediaries is subject to information reporting and, depending upon the circumstances, backup withholding unless the non-U.S. holder certifies under penalty of perjury that it is not a United States person (and the payor does not have actual knowledge or reason to know that the holder is a United States person) or the holder otherwise establishes an exemption.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder will be allowed as a refund or a credit against such non-U.S. holder's U.S. federal income tax liability, if any, provided that the required information is timely furnished to the IRS. Non-U.S. holders should consult their own tax advisors regarding claiming a refund of such backup withholding.

Foreign Account Tax Compliance Act (FATCA)

A U.S. federal withholding tax of 30% may apply to dividends in respect of and the gross proceeds of a disposition of our common stock held by or through a foreign financial institution (as specifically defined by applicable rules), unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities on an annual basis substantial information regarding U.S. account holders of such institution (which may include certain equity holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these withholding and reporting requirements may be subject to different rules. This U.S. federal withholding tax will also apply to a non-financial foreign entity unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or provides information regarding direct and indirect U.S. owners of the entity.

The withholding tax described above will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from the rules. The withholding provisions described above generally apply currently to payments of dividends and will apply to payments of gross proceeds from a sale or other disposition of common stock on or after January 1, 2017. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. We will not pay any additional amounts to non-U.S. holders in respect of any amounts withheld. Non-U.S. holders are encouraged to consult their tax advisors regarding the possible implications of FATCA on their investment in our common stock.

THE SUMMARY OF MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES ABOVE IS INCLUDED FOR GENERAL INFORMATION PURPOSES ONLY. POTENTIAL PURCHASERS OF OUR COMMON STOCK ARE URGED TO CONSULT THEIR TAX ADVISORS TO DETERMINE THE U.S. FEDERAL, STATE, LOCAL AND FOREIGN TAX CONSIDERATIONS OF PURCHASING, OWNING AND DISPOSING OF OUR COMMON STOCK.

TABLE OF CONTENTS**UNDERWRITING**

The underwriter named below has agreed to buy, subject to the terms of the underwriting agreement, the number of shares of common stock and corresponding warrants to purchase the number of shares of common stock listed opposite its name below. The underwriter is committed to purchase and pay for all of the shares and corresponding warrants if any are purchased. The underwriting agreement also provides that if the underwriter defaults, this offering of our securities may be terminated.

Underwriter	Number of Shares	Number of Shares of Common Stock Underlying Warrants
-------------	---------------------	--

Craig-Hallum Capital Group LLC

The underwriter has advised us that it proposes to offer the shares of common stock and corresponding warrants to the public at a price of \$ per share and corresponding warrant. Each purchaser of a share of common stock in this offering will receive a corresponding warrant to purchase of a share of common stock. The underwriter proposes to offer the shares of common stock and corresponding warrants to certain dealers at the same price less a concession of not more than \$ per share and corresponding warrant. After the offering, these figures may be changed by the underwriter.

The shares and corresponding warrants sold in this offering are expected to be ready for delivery on or about March , 2015, against payment in immediately available funds. The underwriter may reject all or part of any order.

The table below summarizes the underwriting discounts that we will pay to the underwriter. In addition to the underwriting discount, we have agreed to pay up to \$85,000 of the fees and expenses of the underwriter, which may include the fees and expenses of counsel to the underwriter. The fees and expenses of the underwriter that we have agreed to reimburse are not included in the underwriting discounts set forth in the table below. The underwriting discount and reimbursable expenses the underwriter will receive were determined through arms length negotiations between us and the underwriter.

	Per Share and Corresponding Warrant	Total
Underwriting discount to be paid by us	\$	\$

We estimate that the total expenses of this offering, excluding underwriting discounts, will be \$300,000. This includes \$85,000 of fees and expenses of the underwriter. These expenses are payable by us.

In addition to the underwriting discount and expense reimbursement arrangements described above, if we undertake a public or private offering of securities, whether on our own behalf or on behalf of our stockholders, at any time within nine months following the closing of this offering, we have agreed to offer the underwriter the right to serve as our (i) exclusive placement agent (in the case of a private offering) or sole underwriter (in the case of a public offering) on an offering of \$7.0 million or less, and (ii) sole bookrunner on a public offering greater than \$7.0 million.

The underwriter has acted as a placement agent and underwriter for us in connection with prior offerings of our securities. In January 2015, we issued unsecured convertible promissory notes with an aggregate principal amount of \$925,000 to accredited investors in a private placement (the January 2015 Private Placement). The notes accrue interest at a rate of 6% per year and mature on December 31, 2016. The outstanding principal and unpaid interest accrued under each note is convertible into shares of our common stock as follows: (i) commencing upon the date of issuance of the note, the investor holding the note is 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 our common stock at a conversion price equal to the lesser of (a) the average closing price of our common stock on the principal securities exchange or securities market on which our common stock is then traded 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 the note is entitled to convert, on a one-time basis, any or all of the remaining outstanding principal and unpaid interest

S-20

TABLE OF CONTENTS

accrued under the note, into shares of our common stock at a conversion price equal to 85% of the average closing price of our common stock on the principal securities exchange or securities market on which our common stock is then traded for the 15 consecutive trading days immediately preceding the date of conversion. The underwriter acted as the sole placement agent for the January 2015 Private Placement and, as compensation for the underwriter's services, we issued to the underwriter an unsecured convertible promissory note, upon the same terms and conditions as the notes issued to the investors in the January 2015 Private Placement, in an aggregate principal amount equal to 5% of the proceeds received by us in the January 2015 Private Placement, or \$46,250. Three persons associated with the underwriter also purchased an aggregate principal amount of \$200,000 of unsecured convertible promissory notes in the January 2015 Private Placement.

In October 2014, we issued 730,776 shares of our common stock at a price per share of \$3.25 together with warrants to purchase 374,618 shares of our common stock in a private placement (the October 2014 Private Placement). The warrants are exercisable for the period from April 22, 2015 through April 22, 2020 and have an exercise price of \$4.00 per share. Six persons associated with the underwriter purchased a total of 246,160 shares of common stock in the October 2014 Private Placement and warrants to purchase 123,080 shares of common stock. We filed a resale registration statement for the shares of common stock issued in the October 2014 Private Placement and for the shares underlying the warrants issued in the October 2014 Private Placement. The resale registration statement became effective in December 2014.

Pursuant to Rule 5110 of FINRA any securities acquired by the underwriter and its associated persons in connection with the October 2014 Private Placement and the January 2015 Private Placement that are held by them, including shares of our common stock issuable upon conversion or exercise thereof, may not be sold, transferred, assigned, pledged, or hypothecated, or the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective disposition of the securities by any person for a period of 180 days after the commencement of sales in this offering, subject to the limited exceptions in FINRA Rule 5110(g)(2).

As of February 25, 2015, the underwriter and its associated persons owned in the aggregate the following amounts of our securities: 549,327 shares of our common stock; warrants to purchase 40,494 shares of our common stock at an exercise price of \$11.73 per share that expire in February 2017; \$246,250 aggregate principal amount of convertible promissory notes issued in connection with the January 2015 Private Placement, which are described above; and warrants to purchase 123,080 shares of our common stock issued in the October 2014 Private Placement, which are described above.

We have agreed to indemnify the underwriter against certain liabilities, including civil liabilities under the Securities Act, or to contribute to payments that the underwriter may be required to make in respect of those liabilities.

We and each of our directors and officers have agreed not to offer, sell, agree to sell, directly or indirectly, or otherwise dispose of any shares of common stock or any securities convertible into or exchangeable for shares of common stock without the prior written consent of the underwriter for a period of 90 days after the date of this prospectus supplement. The 90-day lock-up period in all of the lock-up agreements is subject to extension if (i) during the last 17 days of the lock-up period we issue an earnings release or material news or a material event relating to us occurs or (ii) prior to the expiration of the lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the lock-up period, in which case the restrictions imposed in these lock-up agreements shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event. These lock-up agreements provide limited exceptions and their restrictions may be waived at any time by the underwriter.

To facilitate this offering, the underwriter may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock during and after the offering. Specifically, the underwriter may create a short position in our common stock for its own account by selling more shares of common stock than we have sold to the underwriter.

The underwriter may close out any short position by purchasing shares in the open market.

S-21

TABLE OF CONTENTS

In addition, the underwriter may stabilize or maintain the price of our common stock by bidding for or purchasing shares in the open market and may impose penalty bids. If penalty bids are imposed, selling concessions allowed to broker-dealers participating in this offering are reclaimed if securities previously distributed in this offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of our common stock at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of our common stock to the extent that it discourages resales of our common stock. The magnitude or effect of any stabilization or other transactions is uncertain. These transactions may be effected on the NASDAQ Capital Market or otherwise and, if commenced, may be discontinued at any time.

In connection with this offering, the underwriter and selling group members may also engage in passive market making transactions in our common stock on the NASDAQ Capital Market. Passive market making consists of displaying bids on the NASDAQ Capital Market limited by the prices of independent market makers and effecting purchases limited by those prices in response to order flow. Rule 103 of Regulation M promulgated by the SEC limits the amount of net purchases that each passive market maker may make and the displayed size of each bid. Passive market making may stabilize the market price of our common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Neither we nor the underwriter makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor the underwriter makes any representation that the underwriter will engage in these transactions or that any transaction, if commenced, will not be discontinued without notice.

The underwriter may facilitate the marketing of this offering online directly or through one of its affiliates. In those cases, prospective investors may view offering terms and a prospectus supplement online and place orders online or through their financial advisors.

Other Relationships

The underwriter and its affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. The underwriter has received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of its business activities, the underwriter and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriter and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

TABLE OF CONTENTS

LEGAL MATTERS

Certain legal matters relating to the issuance of the securities offered by this prospectus supplement will be passed upon for us by Paul Hastings LLP, Palo Alto, California. Faegre Baker Daniels LLP, Minneapolis, Minnesota, is counsel to the underwriter in connection with this offering.

EXPERTS

The consolidated financial statements of Transgenomic, Inc. included in Transgenomic, Inc.'s Annual Report (Form 10-K) as of December 31, 2013 and for the year then ended, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report incorporated herein by reference. Such financial statements are incorporated herein in reliance upon the report of Ernst & Young LLP pertaining to such financial statements given on the authority of such firm as experts in accounting and auditing.

The audited consolidated financial statements of Transgenomic, Inc. and subsidiary as of December 31, 2012 and December 31, 2011 included in our Annual Report on Form 10-K for the year ended December 31, 2013 incorporated by reference in this prospectus have been audited by McGladrey LLP, independent registered public accounting firm, as stated in their report dated March 14, 2013, which is incorporated by reference herein, and has been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information reporting requirements of the Exchange Act, and we file annual, quarterly and special reports, proxy statements and other information with the SEC relating to our business, financial results and other matters. The reports, proxy statements and other information we file may be inspected and copied at prescribed rates at the SEC's Public Reference Room and via the SEC's website (see below for more information).

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 that we filed under the Securities Act with the SEC. This prospectus supplement and the accompanying prospectus do not contain all of the information included in that registration statement and its accompanying exhibits and schedules. For further information with respect to our securities and us, you should refer to that registration statement and its accompanying exhibits and schedules. Statements in this prospectus supplement and the accompanying prospectus concerning any document that we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

You may inspect a copy of the registration statement of which this prospectus supplement is a part and its accompanying exhibits and schedules, as well as the reports, proxy statements and other information we file with the SEC, without charge at the SEC's Public Reference Room, 100 F Street, N.E., Room 1580, Washington, D.C. 20549, and you may obtain copies of all or any part of the registration statement from those offices for a fee. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a web site that contains reports, proxy and information statements and other information regarding registrants that file electronically, including us. The address of the site is www.sec.gov.

TABLE OF CONTENTS

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:

- The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2013, filed with the SEC on (a) March 27, 2014, and Amendment No. 1 to the Annual Report on Form 10-K/A for the fiscal year ended December 31, 2013, filed with the SEC on September 5, 2014;
- (b) The Registrant's Definitive Proxy Statement on Schedule 14A filed with the SEC on April 24, 2014;
- (c) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed with the SEC on May 15, 2014;
- (d) The Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2014, filed with the SEC on August 8, 2014;
- (e) The Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2014, filed with the SEC on November 12, 2014;
- The Registrant's Current Reports on Form 8-K filed with the SEC on (i) January 14, 2014, (ii) January 16, 2014, (iii) January 28, 2014, (iv) March 6, 2014, (v) March 19, 2014, (vi) May 6, 2014, (vii) May 14, 2014, (viii) May 15, 2014, (ix) July 2, 2014, as accepted by the SEC at 4:25 p.m. Eastern time, (x) October 22, 2014, (xi) November 5, 2014, (xii) December 23, 2014, (xiii) January 7, 2015, (xiv) January 14, 2015 (but solely as to the matters disclosed under Item 8.01 thereunder and Exhibit 99.2 thereto), (xv) January 20, 2015, and (xvi) February 19, 2015; and
- (g) 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 securities 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.

TABLE OF CONTENTS

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, Nebraska 68164
Phone: (402) 452-5400
Fax: (402) 452-5461
E-mail: investorrelations@transgenomic.com

S-25

TABLE OF CONTENTS

PROSPECTUS

Transgenomic, Inc.

\$50,000,000

**Common Stock
Preferred Stock
Debt Securities
Warrants
Units**

We may offer and sell up to \$50,000,000 in the aggregate of any combination of the securities identified above from time to time in one or more offerings, either individually or in combination with other securities. We may also offer common stock or preferred stock upon conversion of debt securities, common stock upon conversion of preferred stock, or common stock, preferred stock or debt securities upon the exercise of warrants.

Each time we offer and sell securities, we will provide a supplement to this prospectus that contains specific information about the offering and the amounts, prices and terms of the securities. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectuses may also add, update or change information contained in this prospectus with respect to that offering. You should carefully read this prospectus and the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before you invest in any of our securities.

We may offer and sell the securities described in this prospectus and any prospectus supplement to or through one or more underwriters, dealers and agents, or directly to purchasers, or through a combination of these methods. If any underwriters, dealers or agents are involved in the sale of any of the securities, their names and any applicable purchase price, fee, commission or discount arrangement between or among them will be set forth, or will be calculable from the information set forth, in the applicable prospectus supplement. See the sections of this prospectus entitled *About this Prospectus* and *Plan of Distribution* for more information. No securities may be sold without delivery of this prospectus and the applicable prospectus supplement describing the method and terms of the offering of such securities.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading *Risk Factors* on page 3 of 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 3, 2015,

the last reported sales price for our common stock was \$3.32 per share. The applicable prospectus supplement will contain information, where applicable, as to any other listing on the NASDAQ Capital Market or any securities market or other exchange of the securities, if any, covered by the applicable prospectus supplement.

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 13, 2015.

TABLE OF CONTENTS

TABLE OF CONTENTS

<u>About This Prospectus</u>	<u>1</u>
<u>Prospectus Summary</u>	<u>2</u>
<u>Risk Factors</u>	<u>3</u>
<u>Disclosure Regarding Forward-Looking Statements</u>	<u>4</u>
<u>Use of Proceeds</u>	<u>5</u>
<u>Ratio of Earnings to Fixed Charges and Preferred Share Dividends</u>	<u>6</u>
<u>Description of Capital Stock</u>	<u>7</u>
<u>Description of Debt Securities</u>	<u>12</u>
<u>Description of Warrants</u>	<u>20</u>
<u>Description of Units</u>	<u>23</u>
<u>Legal Ownership of Securities</u>	<u>24</u>
<u>Plan of Distribution</u>	<u>27</u>
<u>Legal Matters</u>	<u>29</u>
<u>Experts</u>	<u>29</u>
<u>Where You Can Find More Information</u>	<u>29</u>
<u>Important Information Incorporated by Reference</u>	<u>30</u>

i

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under this shelf registration process, we may offer and sell shares of our common stock and preferred stock, various series of debt securities, warrants to purchase any of such securities and/or units consisting of any combination of such securities, either individually or in combination with other securities, in one or more offerings, up to a total dollar amount of \$50,000,000. This prospectus provides you with a general description of the securities we may offer.

Each time we offer securities under this prospectus, we will provide a prospectus supplement that will contain more 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 these offerings. The prospectus supplement and any related free writing prospectus we have authorized for use in connection with a specific offering may also add, update or change any of the information contained in this prospectus or in the documents that we have incorporated by reference into this prospectus. We urge you to read carefully this prospectus, any applicable prospectus supplement and any free writing prospectuses we have authorized for use in connection with a specific offering, together with the information incorporated herein by reference as described under the section entitled **Important Information Incorporated by Reference**, before buying any of the securities being offered.

You should rely only on the information contained in, or incorporated by reference into, this prospectus and any applicable prospectus supplement, along with the information contained in any free writing prospectuses we have authorized for use in connection with a specific offering. We have not authorized anyone to provide you with different or additional information. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so.

The information appearing 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 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, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading **Where You Can Find More Information**.

TABLE OF CONTENTS

PROSPECTUS 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 securities discussed under the heading Risk Factors contained in 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 is 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 the detection and treatment of cancer and inherited diseases through our proprietary molecular technologies and clinical and research services. We have two complementary business segments:

Laboratory Services. Our laboratories specialize in genetic testing for cardiology, neurology, mitochondrial disorders and oncology. Our Patient Testing laboratories located in New Haven, Connecticut and Omaha, Nebraska are certified under the Clinical Laboratory Improvement Amendment as high complexity labs and our Omaha facility is also accredited by the College of American Pathologists. Our Biomarker Identification laboratory located in Omaha, Nebraska also provides pharmacogenomics research services supporting Phase II and Phase III clinical trials conducted by pharmaceutical companies. Our laboratories employ a variety of genomic testing service technologies, including ICE COLD-PCR technology. ICE COLD-PCR is a proprietary platform technology that can be run in any laboratory with standard PCR technology and that enables detection of multiple unknown mutations from virtually any sample type, including tissue biopsies, blood, cell-free DNA and circulating tumor cells at levels greater than 1,000-fold higher than standard DNA sequencing techniques.

Genetic Assays and Platforms. Our proprietary product is the WAVE® System, which has broad applicability to genetic variation detection in both molecular genetic research and molecular diagnostics. We also distribute bioinstruments produced by other manufacturers, or OEM Equipment, through our sales and distribution network. Service contracts to maintain installed systems are sold and supported by our technical support personnel. The installed WAVE base and some OEM Equipment platforms generate a demand for consumables that are required for the continued operation of the bioinstruments. We develop, manufacture and sell these consumable products. In addition, we manufacture and sell consumable products that can be used on multiple, independent platforms. These products include a range of chromatography columns.

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, 2013. 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.

TABLE OF CONTENTS

RISK FACTORS

Investing in any securities offered pursuant to this prospectus and the applicable prospectus supplement 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 securities being offered. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

3

TABLE OF CONTENTS

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, 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, 2013, as filed with the SEC on March 27, 2014, 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.

TABLE OF CONTENTS

USE OF PROCEEDS

Except as described in any applicable prospectus supplement or in any free writing prospectuses we have authorized for use in connection with a specific offering, we currently intend to use the net proceeds from this offering, if any, for working capital and general corporate purposes, which may include, without limitation, supporting asset growth and engaging in acquisitions or other business combinations. We also may use a portion of the proceeds to repay debt.

The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering.

Accordingly, our management will have broad discretion in the timing and application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments.

5

TABLE OF CONTENTS**RATIO OF EARNINGS TO FIXED CHARGES AND
PREFERRED SHARE DIVIDENDS**

The following table sets forth the historical ratios of earnings to fixed charges and preferred share dividends for Transgenomic and its subsidiary for the periods indicated.

	Year Ended December 31,	Nine Months Ended
	2009	2010
	2011	2012
	2013	September 30, 2014
Ratio of earnings (loss) to fixed charges ⁽¹⁾		
Ratio of earnings (loss) to combined fixed charges and preferred share dividends ⁽²⁾		

We did not record earnings for any of the years ended December 31, 2009, 2010, 2011, 2012 or 2013 or the nine months ended September 30, 2014. Accordingly, our earnings were insufficient to cover fixed charges for such periods and we are unable to disclose a ratio of earnings to fixed charges for such periods. The dollar amount of the deficiency in earnings available for fixed charges for the years ended December 31, 2009, 2010, 2011, 2012 and 2013 and the nine months ended September 30, 2014 was approximately \$1.878 million, \$2.984 million, \$9.737 million, \$8.181 million, \$16.041 million and \$7.678 million.

We did not record earnings for any of the years ended December 31, 2009, 2010, 2011, 2012 or 2013 or the nine months ended September 30, 2014. Accordingly, our earnings were insufficient to cover combined fixed charges and preference dividends for such periods and we are unable to disclose a ratio of earnings to combined fixed charges and preference dividends for such periods. The dollar amount of the deficiency in earnings available for combined fixed charges and preference dividends for the years ended December 31, 2009, 2010, 2011, 2012 and 2013 and the nine months ended September 30, 2014 was approximately \$1.878 million, \$2.984 million, \$10.747 million, \$8.841 million, \$16.767 million and \$8.517 million.

6

TABLE OF CONTENTS

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, \$0.01 par value per share, or the Common Stock, from time to time, as provided in a resolution or resolutions adopted by our Board of Directors.

Common Stock

As of January 31, 2015, 8,283,179 shares of Common Stock were issued and outstanding, held by approximately 82 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 31, 2015 (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, or the Series A Certificate of Designation, and (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, or the Series B Certificate of Designation. As of January 31, 2015, 2,586,205 shares of the Series A Convertible Preferred Stock, or the Series A Preferred, were issued and outstanding, and 1,443,297 shares of the Series B Convertible Preferred Stock, or the Series B Preferred, were issued and outstanding. The Series A Preferred and the Series B Preferred are sometimes referred to in this prospectus, together, as the Preferred Shares.

Dividends, Voting Rights and Liquidation

Each of the Series A Certificate of Designation and the Series B Certificate of Designation provides that the holders of Preferred Shares shall be entitled, as a separate voting group, at each annual or special election of directors, to elect two directors of the Company.

7

TABLE OF CONTENTS

Certain rights of the holders of the Series B Preferred are senior to the rights of the holders of the Series A Preferred and to the rights of the holders of our Common Stock. The Series B Preferred has a liquidation preference equal to its original price per share, plus any accrued and unpaid dividends thereon. The Series B Preferred accrues cumulative dividends at the rate of 6.0% of the original price per share per annum. Additionally, the Series B Certificate of Designation also contains an optional redemption provision whereby the holders of a majority of the then issued and outstanding Series B Preferred, voting together as a separate class, may, after March 5, 2019, the fifth anniversary of the closing of the private placement in which the shares of Series B Preferred were issued, require the Company to redeem all of the then issued and outstanding shares of Series B Preferred at the initial price per share of the Series B Preferred, as adjusted for any stock dividends, combinations or splits, plus all accrued but unpaid dividends.

Certain rights of the holders of the Series A Preferred are senior to the rights of the holders of our Common Stock. Subject to the liquidation preference of the Series B Preferred, the Series A Preferred has a liquidation preference equal to its original price per share, plus any accrued and unpaid dividends thereon. After the payment of dividends to the holders of Series B Preferred, the Series A Preferred accrues cumulative dividends at the rate of 10.0% of the original price per share per annum.

All outstanding shares of Series B Preferred will be automatically converted into Common Stock, at an initial conversion rate of 1:1, and all outstanding shares of Series A Preferred will be automatically converted into Common Stock, at an initial conversion rate of 4:1, at the election of the holders of a majority of the then-outstanding Preferred Shares, voting together as a single class on an as-converted to Common Stock basis. The initial conversion rate for each of the Series A Preferred and the Series B Preferred is subject to adjustment in the event of certain stock splits, stock dividends, mergers, reorganizations and reclassifications. After giving effect to the 1-for-12 reverse split of the Common Stock effected in January 2014, the conversion rate for the Series A Preferred was adjusted to 1:3.

Generally, the holders of the Preferred Shares are entitled to vote together as a single group with the holders of Common Stock on an as-converted to Common Stock basis. However, each of the Series A Certificate of Designation and the Series B Certificate of Designation provides that we will not perform the following activities, subject to certain exceptions, without the affirmative vote of the holders of at least two-thirds of the outstanding Preferred Shares, voting together as a single class on an as-converted to Common Stock basis:

- authorize, create or issue any other class or series of capital stock having rights, preferences or privileges senior to or in parity with the Preferred Shares;
- alter or change the rights, preferences or privileges of the Preferred Shares or increase or decrease the authorized number of Preferred Shares, Series A Preferred or Series B Preferred;
- authorize or declare any dividends on the shares of Common Stock or any other shares of capital stock other than the Preferred Shares, other than dividends payable solely in shares of Common Stock;
 - authorize any offering of equity securities of the Company representing (on a pro forma basis after giving effect to the issuance of such equity securities) the right to receive not less than 10% of any amounts or funds that would, as of immediately following such issuance, be legally available for distribution in connection with a liquidation event;
- redeem any shares of capital stock (other than pursuant to employee agreements or the terms of the capital stock);
 - increase or decrease the authorized number of members of the Board of Directors;
- enter into any binding agreement with any director, employee or any affiliate of the Company, excluding employment-related and equity award agreements;

TABLE OF CONTENTS

materially change the nature of the Company's business, enter into new lines of business or exit the current line of business or invest in any person or entity engaged in a business that is not substantially similar to the Company's business, or change the location of any permanent location of any part of the Company's business;

make any loans or advances, individually or in the aggregate in excess of \$1,000,000, to, or own any securities of, any subsidiary or other corporation or other entity unless it is wholly owned by the Company;

make any loan or advance to any natural person, including, without limitation, any employee or director of the Company, except advances and similar expenditures in the ordinary course of business;

guarantee, directly or indirectly, any indebtedness, except for trade accounts of the Company arising in the ordinary course of business;

sell or otherwise dispose of any assets of the Company with a value, individually or collectively, in excess of \$500,000, other than in the ordinary course of business;

liquidate, dissolve or wind-up the business and affairs of the Company or effect a change in control or any other liquidation event;

incur any indebtedness in excess of \$1,000,000 in the aggregate, other than trade credit incurred in the ordinary course of business;

expend funds in excess of \$500,000 in the aggregate per year for capital improvements, other than any such expenditure that is consistent with a budget approved by the Board of Directors, including the directors elected by the holders of Preferred Shares;

obligate the Company to make aggregate annual payments in excess of \$500,000 or sell, transfer, pledge or license any material technology or intellectual property of the Company, other than a non-exclusive license in the ordinary course of business; or

increase the number of shares reserved and issuable under any of the Company's equity or option incentive compensation plans.

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.

9

TABLE OF CONTENTS

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;

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 our 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.

TABLE OF CONTENTS

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.

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.

TABLE OF CONTENTS

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indenture, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the debt securities under the indenture that we will enter into with the trustee named in the indenture. The indenture will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We have filed the form of indenture as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The following summary of material provisions of the debt securities and the indenture is subject to, and qualified in its entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements and any related free writing prospectuses we authorize for use in connection with a specific offering of debt securities, as well as the complete indenture that contains the terms of the debt securities.

General Matters

The indenture does not limit the amount of debt securities that we may issue. It provides that we may issue debt securities up to the principal amount that we may authorize and in any currency or currency unit that we may designate. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indenture, the terms of the indenture do not contain any covenants or other provisions designed to give holders of any debt securities protection against changes in our operations or financial condition or transactions involving us.

We may issue the debt securities issued under the indenture as discount securities, which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may be issued with original issue discount, or OID, for U.S. federal income tax purposes because of interest payment and other characteristics or terms of the debt securities. Material U.S. federal income tax considerations applicable to debt securities issued with OID will be described in more detail in any applicable prospectus supplement.

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

- the title of the series of debt securities;
- any limit upon the aggregate principal amount that may be issued;
- the maturity date or dates;
- the form of the debt securities of the series;

the applicability of any guarantees;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt; whether the debt securities rank as senior debt, senior subordinated debt, subordinated debt or any combination thereof, and the terms of any subordination;

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

12

TABLE OF CONTENTS

the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

our right, if any, to defer payment of interest and the maximum length of any such deferral period; if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date or dates, if any, on which, and the price or prices at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

any and all terms, if applicable, relating to any auction or remarketing of the debt securities of that series and any security for our obligations with respect to such debt securities and any other terms which may be advisable in connection with the marketing of debt securities of that series;

whether the debt securities of the series shall be issued in whole or in part in the form of a global security or securities; the terms and conditions, if any, upon which such global security or securities may be exchanged in whole or in part for other individual securities, and the depository for such global security or securities;

if applicable, the provisions relating to conversion or exchange of any debt securities of the series and the terms and conditions upon which such debt securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at our option or at the holder's option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange;

if other than the full principal amount thereof, the portion of the principal amount of debt securities of the series which shall be payable upon declaration of acceleration of the maturity thereof;

additions to or changes in the covenants applicable to the particular debt securities being issued, including, among others, the consolidation, merger or sale covenant;

additions to or changes in the events of default with respect to the securities and any change in the right of the trustee or the holders to declare the principal, premium, if any, and interest, if any, with respect to such securities to be due and payable;

additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;

additions to or changes in the provisions relating to satisfaction and discharge of the indenture;

additions to or changes in the provisions relating to the modification of the indenture both with and without the consent of the holders of the debt securities issued under the indenture;

the currency of payment of the debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;

whether interest will be payable in cash or additional debt securities at our or the holder's option and the terms and conditions upon which the election may be made;

the terms and conditions, if any, upon which we will pay amounts in addition to the stated interest, premium, if any, and principal amounts of the debt securities of the series to any holder that is not a United States person for federal tax purposes;

13

TABLE OF CONTENTS

any restrictions on transfer, sale or assignment of the debt securities of the series; and any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, any other additions or changes in the provisions of the indenture, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our Common Stock or our other securities. We will include provisions as to settlement upon conversion or exchange and whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our Common Stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indenture will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of our assets as an entirety or substantially as an entirety. However, any successor to or acquirer of such assets (other than a subsidiary of ours) must assume all of our obligations under the indenture or the debt securities, as appropriate.

Events of Default under the Indenture

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indenture with respect to any series of debt securities that we may issue:

if we fail to pay any installment of interest on any series of debt securities, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by us in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of interest for this purpose;

if we fail to pay the principal of, or premium, if any, on any series of debt securities as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to such series; provided, however, that a valid extension of the maturity of such debt securities in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of principal or premium, if any;

if we fail to observe or perform any other covenant or agreement contained in the debt securities or the indenture, other than a covenant specifically relating to another series of debt securities, and our failure continues for a period of 90 days after we receive written notice of such failure, requiring the same to be remedied and stating that such is a notice of default thereunder, from the trustee or holders of at least 25% of the aggregate principal amount of the outstanding debt securities of the applicable series; and

if specified events of bankruptcy, insolvency or reorganization occur.

If an event of default with respect to debt securities of any series occurs and is continuing, other than certain specified events of bankruptcy, insolvency or reorganization, the trustee or the holders of at least 25% of the aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal, premium, if any, and accrued interest, if any, of such series of debt securities immediately due and payable. If certain specified events of bankruptcy, insolvency or reorganization occur with respect to us, the principal amount and accrued interest, if any, of each issue of debt securities then outstanding

shall be due and payable without any notice or other action on the part of the trustee or any holder.

TABLE OF CONTENTS

The holders of a majority of the principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

Subject to the terms of the indenture, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity. The holders of a majority of the principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

the direction so given by the holder is not in conflict with any law or the applicable indenture; and subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indenture or to appoint a receiver or trustee, or to seek other remedies, only if:

the holder has given written notice to the trustee of a continuing event of default with respect to that series; the holders of at least 25% of the aggregate principal amount of the outstanding debt securities of that series have made a written request,

such holders have offered to the trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred by the trustee in compliance with the request; and the trustee does not institute the proceeding, and does not receive from the holders of a majority of the aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal of, or the premium, if any, or interest on, the debt securities.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indenture.

Modification of Indenture; Waiver

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may change an indenture without the consent of any holders with respect to specific matters, including, but not limited to, the following:

to cure any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series; to comply with the provisions described above under Consolidation, Merger or Sale ; to provide for uncertificated debt securities in addition to or in place of certificated debt securities; to add to our covenants, restrictions, conditions or provisions such new covenants, restrictions, conditions or provisions for the benefit of the holders of all or any series of debt securities, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred upon us in the indenture;

to add to, delete from or revise the conditions, limitations and restrictions on the authorized amount, terms or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;

15

TABLE OF CONTENTS

to make any change that does not adversely affect the interests of any holder of debt securities of any series in any material respect;
to provide for the issuance of, and to establish the form and terms and conditions of, the debt securities of any series as provided above under General Matters , to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment under any indenture by a successor trustee; or to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act.

In addition, under the indenture, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority of the aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

extending the fixed maturity of any debt securities of any series;
reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any series of debt securities; or
reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

The indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including, but not limited to, the following obligations to:

provide for payment;
register the transfer or exchange of debt securities of the series;
replace stolen, lost or mutilated debt securities of the series;
pay principal of and premium and interest on any debt securities of the series;
maintain paying agencies;
hold monies for payment in trust;
recover excess money held by the trustee;
compensate and indemnify the trustee; and
appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, and any premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we provide otherwise in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indenture provides that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, known as DTC, or another depository named by us and identified in the applicable prospectus supplement with respect to that series. To the extent the debt securities

TABLE OF CONTENTS

of a series are issued in global form and as book-entry, a description of terms relating to any book-entry securities will be set forth in the applicable prospectus supplement.

At the option of the holder, subject to the terms of the indenture and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indenture and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the date of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the date of the mailing; or register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except for the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given to it by the indenture at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that, unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we

otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series.

We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of, or any premium or interest on, any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

TABLE OF CONTENTS

Governing Law

The indenture and the debt securities, and any claim, controversy or dispute arising under or related to the indenture or the debt securities, will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

Unsecured Convertible Promissory Notes

Pursuant to the terms of an Unsecured Convertible Promissory Note Purchase Agreement, or the Note Purchase Agreement, dated December 31, 2014, by and among the Company and certain accredited investors, the Company issued and sold, in a private placement, unsecured convertible promissory notes, or the Notes, in the aggregate principal amount of \$1,675,000. 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 is 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 is 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.

Pursuant to the terms of the Note Purchase Agreement, the Company is obligated to use its 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 its commercially reasonable efforts to have the Initial Registration Statement declared effective by the SEC by March 31, 2016. In addition, the Company is obligated to use its 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 its commercially reasonable efforts to have the Additional Registration Statement declared effective by the SEC by March 31, 2017. Under the Note Purchase Agreement, the Company 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.

The Company sold the 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(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 shares of Common Stock issued or issuable under the Notes 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.

Senior Debt

On March 13, 2013, the Company entered into a Loan and Security Agreement, or the Loan Agreement, with Third Security, LLC and its affiliates, or the Lenders, for a revolving line of credit, or the Revolving Line, and a term loan, or the Term Loan. The Loan Agreement, as amended to date, is referred to herein as the Amended Loan Agreement.

Revolving Line

The Company may borrow up to \$3.0 million under the Revolving Line. Pursuant to the terms of the Loan Agreement, amounts advanced under the Revolving Line bear interest at an annual rate equal to the greater of (a) 6.25% or (b) the Wall Street Journal prime rate plus 3.0%. The current interest rate is 6.25% under the Amended Loan Agreement.

Interest is payable on a monthly basis, with the balance payable at the

TABLE OF CONTENTS

maturity of the Revolving Line. In accordance with the terms of the Amended Loan Agreement, the Company paid the Lenders an upfront fee of \$20,000, and are obligated to pay the Lenders an additional commitment fee of \$20,000 on each one-year anniversary of March 13, 2013 during the term of the Revolving Line. In addition, a fee of 0.5% per annum is payable quarterly on the unused portion of the Revolving Line. The Revolving Line matures on September 1, 2016.

Term Loan

The Company received \$4.0 million under the Term Loan on March 13, 2013. Interest under the Term Loan accrues at the annual rate of one month LIBOR plus 6.1%, subject to a LIBOR floor of 3%. The Company was required to make interest-only payments under the Term Loan through December 31, 2013, principal and interest payments on a monthly basis in each of January and February 2014 using a straight-line amortization rate, and principal and interest payments on a monthly basis beginning on April 1, 2015 through maturity using a straight-line amortization rate.

The Company paid the Lenders an upfront fee of \$40,000 for the Term Loan, and will pay the Lenders an additional final payment of \$120,000 at maturity or prepayment of the Term Loan. In addition, if the Company repays the Term Loan prior to maturity, it will pay the Lenders a prepayment penalty of 2.5% of the total outstanding balance under the Term Loan if the prepayment occurs prior to March 13, 2015, and 1.0% of the total outstanding balance under the Term Loan if the prepayment occurs thereafter. The Term Loan matures on September 1, 2016.

Additional Terms

The Amended Loan Agreement contains affirmative and negative covenants reasonably customary for similar credit facilities. Under the Term Loan, the Company is required to maintain a minimum liquidity ratio and achieve a minimum amount of revenue, and the Company also agreed not to (i) pledge or otherwise encumber its assets other than to the Lenders, (ii) enter into additional borrowings or guarantees, (iii) repurchase its capital stock, or (iv) enter into certain mergers or acquisitions without the Lenders' consent. Additionally, the Amended Loan Agreement contains a subjective acceleration clause at the discretion of the Lenders.

To secure the repayment of any amounts borrowed under the Revolving Line and the Term Loan, the Company granted the Lenders a security interest in all of the Company's assets. The occurrence of an event of default under the Amended Loan Agreement could result in the acceleration of the Company's obligations under the Amended Loan Agreement and would increase the applicable interest rate under the Revolving Line or the Term Loan (or both) by 5.0%, and permit the Lenders to exercise remedies with respect to the collateral under the Amended Loan Agreement.

TABLE OF CONTENTS

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses we have authorized for use in connection with a specific offering, summarizes the material terms and provisions of the warrants that we may offer under this prospectus, which may consist of warrants to purchase Common Stock, Preferred Stock or debt securities and may be issued in one or more series.

Warrants may be issued independently or together with Common Stock, Preferred Stock or debt securities offered by any prospectus supplement, and may be attached to or separate from those securities. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe the particular terms of any series of warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus we authorize for use in connection with the specific offering. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We have filed forms of the warrant agreements as exhibits to the registration statement of which this prospectus is a part. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement, if any, including a form of warrant certificate, that describes the terms of the particular series of warrants we are offering. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the particular series of warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses we have authorized for use in connection with a specific offering, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General Matters

We will describe in the applicable prospectus supplement the terms relating to a series of warrants being offered, including:

- the title of such securities;
- the offering price or prices and aggregate number of warrants offered;
- the currency or currencies for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- if applicable, the minimum or maximum amount of such warrants which may be exercised at any one time;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at which, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase Common Stock or Preferred Stock, the number of shares of Common Stock or Preferred Stock, as the case may be, purchasable upon the exercise of one warrant and the price at which, and the currency in which, these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;

the terms of any rights to redeem or call the warrants;

TABLE OF CONTENTS

the terms of any rights to force the exercise of the warrants;
any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the dates on which the right to exercise the warrants will commence and expire;
the manner in which the warrant agreements and warrants may be modified;
a discussion of any material or special United States federal income tax consequences of holding or exercising the warrants;

the terms of the securities issuable upon exercise of the warrants; and
any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including:

in the case of warrants to purchase debt securities, the right to receive payments of principal of, or premium, if any, or interest on, the debt securities purchasable upon exercise or to enforce covenants in the applicable indenture; or in the case of warrants to purchase Common Stock or Preferred Stock, the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent in connection with the exercise of the warrant.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

Governing Law

Unless we provide otherwise in the applicable prospectus supplement, the warrants and warrant agreements, and any claim, controversy or dispute arising under or related to the warrants or warrant agreements, will be governed by and construed in accordance with the laws of the State of New York.

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any

TABLE OF CONTENTS

holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

Outstanding Warrants

As of January 31, 2015, warrants to purchase 2,376,059 shares of Common Stock with an average exercise price of \$9.24 per share were outstanding, and warrants to purchase 1,293,102 shares of Series A Preferred with an average exercise price of \$2.32 per share were outstanding. Except for certain warrants to purchase 374,618 shares of Common Stock, all of the outstanding warrants are currently exercisable, and all 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.

TABLE OF CONTENTS

DESCRIPTION OF UNITS

We may issue units consisting of any combination of the other types of securities offered under this prospectus in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement.

We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select.

We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units.

The following description, together with the additional information included in any applicable prospectus supplement, summarizes the general features of the units that we may offer under this prospectus. You should read any prospectus supplement and any free writing prospectus we authorize for use in connection with a specific offering of units, as well as the complete unit agreements that contain the terms of the units. Specific unit agreements will contain additional important terms and provisions and we will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from another report that we file with the SEC, the form of each unit agreement relating to units offered under this prospectus.

If we offer any units, certain terms of that series of units will be described in the applicable prospectus supplement, including, without limitation, the following, as applicable:

- the title of the series of units;
- identification and description of the separate constituent securities comprising the units;
- the price or prices at which the units will be issued;
- the date, if any, on and after which the constituent securities comprising the units will be separately transferable;
- a discussion of certain U.S. federal income tax considerations applicable to the units; and
- any other terms of the units and their constituent securities.

TABLE OF CONTENTS

LEGAL OWNERSHIP OF SECURITIES

We can issue securities in registered form or in the form of one or more global securities. We describe global securities in greater detail below. We refer to those persons who have securities registered in their own names on the books that we or any applicable trustee or depository maintain for this purpose as the holders of those securities. These persons are the legal holders of the securities. We refer to those persons who, indirectly through others, own beneficial interests in securities that are not registered in their own names, as indirect holders of those securities. As we discuss below, indirect holders are not legal holders, and investors in securities issued in book-entry form or in street name will be indirect holders.

Book-Entry Holders

We may issue securities in book-entry form only, as we will specify in the applicable prospectus supplement. This means securities may be represented by one or more global securities registered in the name of a financial institution that holds them as depository on behalf of other financial institutions that participate in the depository's book-entry system. These participating institutions, which are referred to as participants, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Only the person in whose name a security is registered is recognized as the holder of that security. Global securities will be registered in the name of the depository or its participants. Consequently, for global securities, we will recognize only the depository as the holder of the securities, and we will make all payments on the securities to the depository. The depository passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depository and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors in a global security will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depository's book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect holders, and not legal holders, of the securities.

Street Name Holders

We may terminate a global security in certain situations, as described under Special Situations When a Global Security Will Be Terminated, or issue securities that are not issued in global form. In these cases, investors may choose to hold their securities in their own names or in street name. Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we or any applicable trustee or depository will recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we or any such trustee or depository will make all payments on those securities to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect holders, not holders, of those securities.

Legal Holders

Our obligations, as well as the obligations of any applicable trustee or third party employed by us or a trustee, run only to the legal holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect holder of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the legal holder, we have no further responsibility for the payment or notice even if that legal holder is required, under agreements with its participants or customers or by law, to pass the payment or notice along to the indirect holders but does not do so. Similarly, we may want to obtain the approval of the holders to amend an indenture, to relieve us of

TABLE OF CONTENTS

the consequences of a default or of our obligation to comply with a particular provision of an indenture, or for other purposes. In such an event, we would seek approval only from the legal holders, and not the indirect holders, of the securities. Whether and how the legal holders contact the indirect holders is up to the legal holders.

Special Considerations for Indirect Holders

If you hold securities through a bank, broker or other financial institution, either in book-entry form because the securities are represented by one or more global securities or in street name, you should check with your own institution to find out:

how it handles securities payments and notices;
whether it imposes fees or charges;

how it would handle a request for the holders' consent, if ever required;

whether and how you can instruct it to send you securities registered in your own name so you can be a holder, if that is permitted in the future;

how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and

if the securities are in book-entry form, how the depository's rules and procedures will affect these matters.

Global Securities

A global security is a security that represents one or any other number of individual securities held by a depository. Generally, all securities represented by the same global securities will have the same terms.

Each security issued in book-entry form will be represented by a global security that we issue to, deposit with and register in the name of a financial institution or its nominee that we select. The financial institution that we select for this purpose is called the depository. Unless we specify otherwise in the applicable prospectus supplement, The Depository Trust Company, New York, New York, known as DTC, will be the depository for all securities issued in book-entry form.

A global security may not be transferred to or registered in the name of anyone other than the depository, its nominee or a successor depository, unless special termination situations arise. We describe those situations below under **Special Situations When a Global Security Will Be Terminated**. As a result of these arrangements, the depository, or its nominee, will be the sole registered owner and legal holder of all securities represented by a global security, and investors will be permitted to own only beneficial interests in a global security. Beneficial interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depository or with another institution that does. Thus, an investor whose security is represented by a global security will not be a legal holder of the security, but only an indirect holder of a beneficial interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued as a global security, then the security will be represented by a global security at all times unless and until the global security is terminated. If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations for Global Securities

As an indirect holder, an investor's rights relating to a global security will be governed by the account rules of the investor's financial institution and of the depositary, as well as general laws relating to securities transfers. We do not recognize an indirect holder as a holder of securities and instead deal only with the depositary that holds the global security.

TABLE OF CONTENTS

If securities are issued only as global securities, an investor should be aware of the following:

an investor cannot cause the securities to be registered in his or her name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations described below;

an investor will be an indirect holder and must look to his or her own bank or broker for payments on the securities and protection of his or her legal rights relating to the securities, as described above;

an investor may not be able to sell interests in the securities to some insurance companies and to other institutions that are required by law to own their securities in non-book-entry form;

an investor may not be able to pledge his or her interest in the global security in circumstances where certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;

the depositary's policies, which may change from time to time, will govern payments, transfers, exchanges and other matters relating to an investor's interest in the global security;

we and any applicable trustee have no responsibility for any aspect of the depositary's actions or for its records of ownership interests in the global security, nor will we or any applicable trustee supervise the depositary in any way;

the depositary may, and we understand that DTC will, require that those who purchase and sell interests in the global security within its book-entry system use immediately available funds, and your broker or bank may require you to do the same; and

financial institutions that participate in the depositary's book-entry system, and through which an investor holds its interest in the global security, may also have their own policies affecting payments, notices and other matters relating to the securities.

There may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the actions of any of those intermediaries.

Special Situations When a Global Security Will Be Terminated

In a few special situations described below, a global security will terminate and interests in it will be exchanged for physical certificates representing those interests. After that exchange, the choice of whether to hold securities directly or in street name will be up to the investor. Investors must consult their own banks or brokers to find out how to have their interests in securities transferred to their own names, so that they will be direct holders. The rights of holders and street name investors are described above.

A global security will terminate when the following special situations occur:

if the depositary notifies us that it is unwilling, unable or no longer qualified to continue as depositary for that global security and we do not appoint another institution to act as depositary within 90 days;

if we notify any applicable trustee that we wish to terminate that global security; or

if an event of default has occurred with regard to securities represented by that global security and has not been cured or waived.

The applicable prospectus supplement may also list additional situations for terminating a global security that would apply only to the particular series of securities covered by the prospectus supplement. When a global security terminates, the depositary, and neither we nor any applicable trustee, is responsible for deciding the names of the institutions that will be the initial direct holders.

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, at the market offerings, negotiated transactions, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute securities from time to time in one or more transactions:

at a fixed price or prices, which may be changed;
at market prices prevailing at the time of sale;
at prices related to such prevailing market prices; or
at negotiated prices.

A prospectus supplement or supplements (and any related free writing prospectus that we may have authorized for use in connection with a specific offering) will describe the terms of the offering of the securities, including, to the extent applicable:

the name or names of the underwriters, if any;
the purchase price of the securities or other consideration therefor, and the proceeds, if any, we will receive from the sale;

any over-allotment options under which underwriters may purchase additional securities from us;
any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;
any public offering price;
any discounts or concessions allowed or re-allowed or paid to dealers; and
any securities exchange or market on which the securities may be listed.

Only underwriters named in the prospectus supplement will be underwriters of the securities offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement, other than securities covered by any over-allotment option. Any public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

TABLE OF CONTENTS

We may provide agents and underwriters with indemnification against civil liabilities, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

All securities we may offer, other than Common Stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in over-allotment, stabilizing transactions, short-covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum price. Syndicate-covering or other short-covering transactions involve purchases of the securities, either through exercise of the over-allotment option or in the open market after the distribution is completed, to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters that are qualified market makers on the NASDAQ Capital Market may engage in passive market making transactions in the common stock on the NASDAQ Capital Market in accordance with Regulation M under the Exchange Act, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and the applicable prospectus supplement.

TABLE OF CONTENTS

LEGAL MATTERS

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

EXPERTS

The consolidated financial statements of Transgenomic, Inc. included in Transgenomic, Inc.'s Annual Report (Form 10-K) as of December 31, 2013 and for the year then ended, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report incorporated herein by reference. Such financial statements are incorporated herein in reliance upon the report of Ernst & Young LLP pertaining to such financial statements given on the authority of such firm as experts in accounting and auditing.

The audited consolidated financial statements of Transgenomic, Inc. and subsidiary as of December 31, 2012 and December 31, 2011 included in our Annual Report on Form 10-K for the year ended December 31, 2013 incorporated by reference in this prospectus have been audited by McGladrey LLP, independent registered public accounting firm, as stated in their report dated March 14, 2013, which is incorporated by reference herein, and has been so incorporated in reliance upon the report of such firm given upon their authority 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 securities 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 securities 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>.

TABLE OF CONTENTS

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:

- The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2013, filed with the SEC on (a) March 27, 2014, and Amendment No. 1 to the Annual Report on Form 10-K/A for the fiscal year ended December 31, 2013, filed with the SEC on September 5, 2014;
- (b) The Registrant's Definitive Proxy Statement on Schedule 14A filed with the SEC on April 24, 2014;
- (c) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed with the SEC on May 15, 2014;
- (d) The Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2014, filed with the SEC on August 8, 2014;
- (e) The Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2014, filed with the SEC on November 12, 2014;
- The Registrant's Current Reports on Form 8-K filed with the SEC on (i) January 14, 2014, (ii) January 16, 2014, (iii) January 28, 2014, (iv) March 6, 2014, (v) March 19, 2014, (vi) May 6, 2014, (vii) May 14, 2014, (viii) May 15, 2014, (ix) July 2, 2014, as accepted by the SEC at 4:25 p.m. Eastern time, (x) October 22, 2014, (xi) November 5, 2014, (xii) December 23, 2014; (xiii) January 7, 2015; (xiv) January 14, 2015 (but solely as to the matters disclosed under Item 8.01 thereunder and Exhibit 99.2 thereto), and (xv) January 20, 2015; and
- (g) 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 securities 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

Edgar Filing: TRANSGENOMIC INC - Form 424B5

Omaha, NE 68164

Phone: (402) 452-5400

Fax: (402) 452-5461

E-mail: investorrelations@transgenomic.com

30

TABLE OF CONTENTS

Shares of Common Stock

Warrants to Purchase Shares of Common Stock

TRANSGENOMIC, INC.

PROSPECTUS SUPPLEMENT

Craig-Hallum Capital Group
